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**A STUDENT'S BOOKLET TO  
MECHANICAL DEBRIDEMENT OF  
CHRONIC WOUND**

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<p>Abstract</p> <p>This projects' objective is to facilitate nursing students learning experience in their clinical placements in mechanical wound debridement. The writers intended to collect knowledge on wound care especially mechanical wound debridement. The purpose is to produce a comprehensive student's booklet to mechanical wound debridement as complementary learning material for SAMK nursing students. The critical path method was used in the implementation of this project which wherein the writers classified tasks into hierarchy, made a timeline for the task, identified task dependencies such as risk, and marking the project milestones.</p> <p>The project purpose and objective were completed by doing theoretical research using reliable and updated resources about chronic wounds and wound debridement. The booklet was able to contain relevant sub-topics including anatomy of the skin, wound assessment, wound healing. The procedure of the most common wound debridement techniques was discussed. The booklet was revised and edited to improve quality of contents and include Finnish guidelines. The finalized booklet was sent to the subscribers for feedback which concluded that the booklet can be used as a complementary learning material after some minor corrections related to in-text referrals and an update to the pain relief reference. According to the results of the feedback from the target students which were the SAMK's students in Bachelors of nursing the booklet was good in terms of its overall verdict, structure, layout, content relevance, precision and comprehension. The booklet content relevance had received a poor rating from one evaluator.</p> <p>Concluding from the positive feedback from both the subscribers and the target students the purpose and objectives of the project is partially achieved. The booklet produced needed updates to the pain relief references. Some suggestions from the students can be considered in improving the booklet.</p>		
<u>Key words</u> Chronic wounds, students' booklet, wound debridement		

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## 1 INTRODUCTION

Wound management is estimated to account for over 50% of community nurse time in European studies, with patients often having three or more home health visits per week (Lindholm Christina, R. S., 2016). Caring for wounds is a common task often undertaken by nurses as well nursing students. As future professionals in health and wellness a comprehensive theoretical background on mechanical wound debridement is necessary. Managing chronic or non-healing wounds presents challenges and frustrations for both healthcare professionals and patients alike (Brown, A., 2019). It is a skill that best grasped with much experience which is limited during the time they spend studying the degree. Conducting the thesis about the topic has provided us opportunities to understand the topic profoundly. The project had been an outlet for our interest and curiosity about wound care. It has stimulated interests in specialized studies for our future careers such surgical care, infection prevention, wound management and research.

This project is completed as a bachelor's thesis required to complete Bachelor of Nursing in SAMK. The faculty of health and wellness aims to integrate internationality in their degree program. The curriculum is conducted in English and includes various courses to build competence in language, interactive and cultural skills. Among these include practical trainings in cooperation with both public and private health care agencies. In preparation for practical trainings clinical simulations are conducted while reflections are done after to evaluate learning experience. A bachelor's thesis is required before matriculation as evidence of skill and expertise in Nursing profession. (SAMK website, 2020).

The project objective was to find out what are the essential information about wound debridement necessary for Nursing students of SAMK and ultimately produce a comprehensive student's booklet to mechanical wound debridement as complementary learning material.

## 2 THEORETICAL BASIS OF THE THESIS

The key concepts for this project are student booklet, mechanical debridement, anatomy of the skin, types of wound debridement, chronic wound, wound assessment, stages of wound healing, materials for wound care, procedure of wound care. These key concepts will be expanded with more details or sub-concepts. Student booklet as an educational material.

### 2.1 Student booklet as an educational material.

Students Booklet is stated in the theory of Ausubel that materials should be submitted organized, tidy, and consistent with prior knowledge of students in order to let them to learn more efficiently. The research concluded that using a variety of learning strategies in the education of nursing students can better cover their needed aspects and keep their motivation to learning. It is mentioned that rehearsing and repetition of the help keep information in long-term memory and is easier remembered in the future. (Aliakbari, F., Parvin, N., Heidari, M., & Haghani, F., 2015.)

### 2.2 What is mechanical debridement

The healing process of acute and chronic wounds comprises of either cleansing or debridement. It is a central medical intervention in managing acute and chronic wounds that induces the tissue repair. Debridement, however, is a more complicated process than wound cleansing, which is defined as the detachment of grime. There are some other methods such as revision of a wound, amputation or resection of functional tissue not included in debridement. The term "debridement" came from the French, which means to remove a constraint. Presently, it means to deeply remove the attached decaying or contaminated tissues from a wound that is clearly more complex than cleansing a wound. Debridement describes the removal of necrotic or foreign material from and around a wound to optimize wound healing. They can be broadly classified by the techniques used such as surgical, mechanical, biological, chemical, enzymatic and autolytic. (EWMA, 2013.)

Debridement is the key step to healing wound, it can be used for most types of wounds, regardless of its diagnosis and origin. The main tasks for the health care providers are to recognize the need for debridement and its frequency by assessing specific tissue types and bioburden present on and around the wound. (EWMA, 2013.)

### 2.3 Types of wound debridement

There are many new debridement techniques introduced over the years that primarily promote the progress of wound inflammation to wound repair by the application of physical principles and forces. (EWMA, 2013).

Mechanical debridement is performed on the wound daily or every few days at the time of dressing changes. Mechanical cleansing requires skill to identify the tissue in the wound so that the cleansing does not damage healthy tissue. (TYKS, Haavatyöryhmä, 2011.)

In sharp or surgical debridement, dead tissues are removed by cutting or scraping with forceps, scissors, and surgical knives. Devices such as hydro-surgery and lasers are also used. Most clinicians recommend surgical debridement as the optimal debridement technique. It can be painful so topical anesthetic such as lidocaine cream or gels are needed. (Baranoski S. and Ayello, E. 271, 2015.)

Mechanical wound debridement or “revisio” in Finnish is the removal of dead tissue from the wound with small scissors, forceps, a scoop, a ring curette, or a knife. The light hardening barrier at the edges of the wound is removed by scraping with a knife. (Krooninen alaraajaava: Käypä hoito-suositus,2017.)

In wound irrigation, the wound is cleaned primarily by spraying the wound with potable water, saline solution or ringer’s solution for a short time. As an option for chronic wounds, cleansing solutions can be used. (TYKS, Haavatyöryhmä, 2011.)

The wet-to-dry is a method is done by leaving or packing a moist gauze pad over the wound and allowed to dry. The necrotic tissue will harden and adhere to the gauze.

The dry gauze is then removed pulling the necrotic tissue away from the wound bed. This method of wound debridement should only use for short-term therapy for infected necrotic wounds. (EWMA, 2013.)

Device-assisted mechanical wound debridement techniques include vacuum treatment which creates a vacuum on the wound surface by means of a polyurethane sponge and a suction hose to cleanse the wound bed. This reduces local swelling, eliminates secretion and stimulates new tissue formation. Another device is an ultrasonic wound cleanser that mechanically cleans dead tissue from a wound. Low frequency ultrasonic wound cleansing does not damage healthy tissue. Ultrasonic cleansing is combined with spaying saline solution to reduce bacterial colonization from the wound and remove fibrin coating as well as dead tissue. (TYKS, Haavatyöryhmä, 2011.)

In surgical debridement or radical revision, any bad and lifeless tissue is removed from the wound with knife, scissors, or forceps and it also removes healthy tissues. The doctor cleans the wound if there is a tendon or bone in it, so that the depth of the revision extends to the border of healthy and dead tissue; that is, bleeding tissue. The removal of necrotic tissue can often be done as a simple “bed-side” procedure without anesthesia. Surgical cleansing is especially appropriate when the wound has a large amount of dead tissue or a clear clinical bacterial infection. (Baranoski S. and Ayello, E. 256, 2015.)

In biological debridement, sterile cultured maggots are placed on the wound to remove necrotic tissue without damaging healthy tissue. Rapid cleansing of necrosis from the wound also effectively removes bad odor. (TYKS, Haavatyöryhmä, 2011.)

Autolytic debridement takes advantage of the body’s own ability to break down dead tissue and requires a humid environment and good blood circulation in the wound to function. The dressing that maintains and increases moisture promotes autolysis in the wound. However, the autolytic dressing is not suitable for cleaning infected and diabetic peripheral wounds because anaerobic bacteria may multiply under the occlusive dressing. (TYKS, Haavatyöryhmä, 2011.)

In enzymatic wound debridement proteolytic enzymes are applied to the wound to degrade necrotic tissue without damaging living tissue. Enzymes break down collagen fibres between non-circulating and healthy tissue and requires moisture to activate. (TYKS, Haavatyöryhmä, 2011.)

#### 2.4 Indications of wound debridement

Wound debridement is included in the individual's management of a wound which is done in order to achieve certain goals such as promoting and accelerating healing. An indication to perform debridement does not relate to the diagnosis of the wound but depends on factors such as tissue types covering the wound, state of humidity and the patient's situation. (EWMA, 2013.)

Choosing the right techniques of debridement can be challenging, given the various and conflicting evidence about the different debridement options available. Remember, your choice may be limited by the availability of the various debridement methods in your facility or healthcare system. (Baranoski S. and Ayello, E. 271, 2015.)

#### 2.5 Limitation of wound debridement

Wound debridement can be painful therefore, nurses need to consider the patient's pain medication before the procedure. All mechanical methods are considered indiscriminate debridement, which means there is no distinction between healthy and necrotic tissue. These methods can do harm to healthy granulation tissue on the surface of the wound. From that, it leads to unexpected complications such as bleeding, trauma, and collagen deficiency along with the necrotic tissue. (Baranoski, Sharon, and Elizabeth Ayello, 2015.)



## 2.6 Anatomy of the skin

### 2.6.1 Structure

The structure of the skin is basically divided into three separate regions: epidermis, dermis and subcutaneous. The epidermis is the outermost layer of the skin, which is visible to the naked eye. The epidermis is made of epithelium which contains four key cell types: Keratinocytes, melanocytes, Langerhans cells, and Merkel cells. The epidermis itself has many different layers called strata. There are five layers or so-called stratum of this distinct region which are Corneum, Lucidum, Granulosum, Spinosum, Basale (Figure 1). (Ian Peate, Muralitharan Nair 2016, 553.)

The dermis is the center of the integumentary system, the deepest part of the skin below the epidermis (Figure 1). It contains blood and lymph vessels, nerves, smooth muscles, sweat glands, hair follicles and sebaceous glands. The dermis is built up of two layers, the papillary aspect and the reticular aspect. The papillary aspect is the top part of dermis, connecting the dermis and epidermis. Human fingerprints are developed from this layer. The papillary layer contains phagocytic, defense cells that help against infections caused by bacteria. It also contains Meissner corpuscle, lymphatic capillaries, nerve fibers, and touch receptors. Thus, it helps people to feel hot, cold, or itchy. The reticular aspect is the deepest part of the dermis and is connected to subcutaneous layers. It is composed of dense irregular connective tissue featuring densely packed collagen fibers and coarse elastic fiber from the reticular aspect. It also has sensory receptors such as Pacinian to help deep sensory pressure. Here, there is an accessory structure, which contains sweat glands, lymph vessels, smooth muscle and hair follicles. (Ian Peate, Muralitharan Nair 2016, 558.)

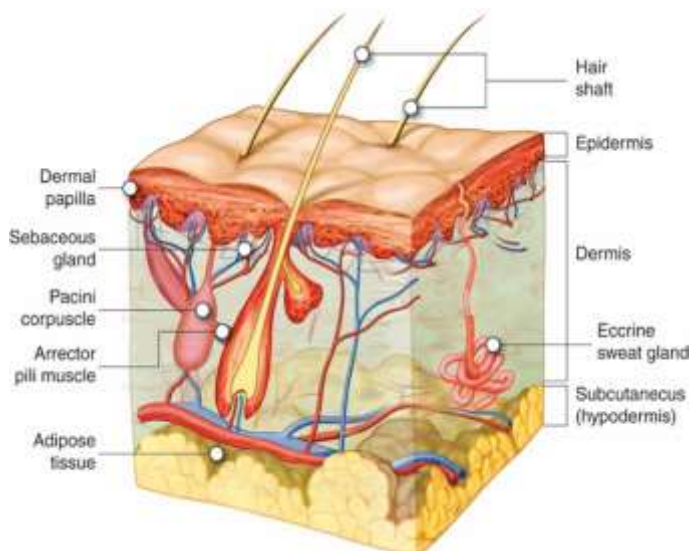


Figure 1. Anatomy of human skin. (Website of lumencandela,2020).

The subcutaneous is the deepest layer under the epidermis and dermis, also known as subcutaneous tissue or hypodermis. This is a combination of adipose and connective tissue, blood vessels, nerves, and lymphatic vessels. Depending on the person or different parts of the body, the thickness of these layers can be different. (Figure 1). (Ian Peate, Muralitharan Nair 2016, 559.)

### 2.6.2 Functions of the skin

The skin acts as a protective barrier to help fight bad agents from the outside environment to protect internal organs such as the nervous system, blood vessels, bones, and organs. Besides that, through the sweat glands and blood vessels in the dermis, the skin also plays a thermoregulated role in regulating body temperature. If the outside temperature is high, the skin will increase sweat production to cool the body. On the contrary, when the outside temperature is low, the blood vessels under the skin contract and reduce sweating to retain heat for the body. Vitamin D compound metabolism is also carried out through the skin, when it reacts with sunlight. It will lead to the metabolism of calcium and phosphate, minerals to help in bone formation. The skin's sensory receptor function helps us to be aware of heat, cold, pain, pressure, and contact. Finally, the skin has a very important role in immune processing that allows the skin to resist biological, physical, and chemical agents from its surroundings, protecting the body. (Ian Peate, Muralitharan Nair 2016, 563.)

## 2.7 Chronic wound

### 2.7.1 Definition of chronic wound

The term “chronic wound” was first defined in 1950 to be an irreversible wound in a normal healing process. There are terms such as hard or difficult to heal wounds, non-healing or complex wounds were also used depending on how long the wound has been present. Currently, we define chronic wounds as wounds that have not returned to its anatomic and functional status after 3 months of initial injury. (Website of Acta Dermato-Venereologica, 2017.)

### 2.7.2 Classification of wounds

The most common chronic wounds are the ulcer wounds which can be classified into four different categories: venous, arterial, inflammatory and systemic, and metabolic. Most chronic lower limb wounds are caused by venous insufficiency, but peripheral arterial disease also plays a significant role in wound formation. (Krooninen alaraajahaava: Käypä hoito-suositus,2017.)

A chronic or prolonged lower limb wound refers to a leg or foot wound that has been open for more than 4 weeks. If there is a deficiency of arterial circulation in the wound, it is already identified as a chronic leg wound when it has been open for 2 weeks. (Rautava-Nurmi et al., 2019, 229-230.)

Most chronic lower limb wounds are caused by circulatory disorders. Venous insufficiency is the cause in 37–76% of cases. Arterial circulatory failure is the cause in 9–22% of cases. The combination of venous insufficiency and arterial circulatory insufficiency causes 7–26% of so-called combined or mixed wounds. 2–25% of wound patients have diabetes. (Krooninen alaraajahaava: Käypä hoito-suositus,2017.)

### 2.7.3 Chronic leg ulcer

A chronic lower limb ulcer is not a distinct disease but a result of some disease or other factors that causes and maintains the wound. Internal factors include insufficiency of the arteries and veins, diabetes, cancer and vasculitis. External factors can put pressure on the skin from prolonged bedrest or immobility. (Rautava-Nurmi et al., 2019, 229.)

Venous leg ulcers occur along the medial or lateral distal leg. They are caused by venous hypertension and clog due to valvular inadequacy. There is backpressure in the vein that promotes absorption, spillage of macromolecules and hemocytes into the perivascular space, ultimately resulting in edema and fibrosis that reduces the distribution of oxygen, vital components, and supplements into the injured tissue (Figure2). It will affect around 1-2 percent of adults, especially women and the elderly. (Ruiling. Z, et al., 2016.)



*Figure 2. Venous leg ulcer (Website of Wikipedia commons, 2011).*

Arterial ulcers are less common than venous ulcers and happen when there is artery deficiency caused by atherosclerosis, thromboembolic, or radiation damage. There is ischemia or reduced blood and oxygen distribution to the affected area. An arterial ulcer is often found over bony prominences and easily identifiable by circular shapes with a defined border (Figure 3). The main risk factors of this condition are diabetes, smoking, high blood pressure, hypercholesterolemia, and old age. (Ruiling. Z, et al., 2016.) The most common of the metabolic leg ulcers is the diabetic leg ulcer which

means a wound is difficult to heal because of the underlying disease (Rautava-Nurmi, et al., 2019, 230).



*Figure 3. Arterial ulcer (Website of Wikipedia commons, 2010).*

Diabetic Foot Ulcer or diabetic foot ulcers are serious complications of diabetes. Ulcers are formed by many factors such as the loss of sensation in the feet, blood circulation, trauma, foot deformities and pressure (Figure 4). Persistent diabetes often results in neuropathy, where there is partial or complete insensibility to pain, and it is easy to neglect minor injuries and symptoms of ulcers. At the same time, diabetes triggers hyperglycemia that disrupt wound healing. Diabetics often face the risk of re-ulceration, amputation and death. (Ruiling. Z, et al., 2016.)



*Figure 4. Diabetic ulcer (Website of Wikipedia commons, 2012).*

Pressure Ulcers or pressure sores or bedsores is a state that occurs when a patient lacks mobility, sensory perception, is paralyzed or unconscious. Therefore, they could not sense enough to meet the need to reposition. This prolonged condition will lead to partial ischemia of the suppressed skins. As a result, the skin becomes necrotic due to lack of oxygen. Depending on the patient's condition, the vulnerable areas may be tailbone, buttocks, shoulder blades, hips or heel. (Ruiling. Z, et al., 2016.)

A wound may develop in a very short time of 1-2 hours if the patient is unable to change position. The main principle in the prevention of pressure ulcers is to change the patients positions regularly. Patients with pressure ulcers often have an increased need for nutrition. For the prevention and treatment of pressure ulcers, the European pressure wound expert council (EPUAP) recommends a high intake of protein, arginine amino acid, antioxidant vitamins and trace minerals. (Rautava-Nurmi, et al., 2019,236-237.)

Less common causes of chronic wounds include vasculitis, malignancies, rare infections, and radiation therapy. As the population ages, the number of multifactorial wounds is also increasing. The most common multifactorial wound is a lower limb wound with underlying arterial and venous circulatory failure. (Website of terveyskylä, 2020.)

#### 2.7.4 Acute vs. Chronic wound

A wound refers to damage to the skin and underlying tissues caused by an injury, deficiency or separation of tissues from each other. Wounds vary in shape depending on their causes, tissues involved and whether they are closed or open wounds. The wound may also be caused by a deficiency in the skin or the mucus membrane due to a disease that results in tissue destruction. Wounds are classified into acute or chronic wounds depending on the causes and healing process. Acute wounds however become chronic due to infections and improper treatment. The incidence of chronic wounds increases with age and the presence of vascular disease and diabetes. (Rautava-Nurmi et al., 2019, 227-229.)

Tumors can also cause wounds. If a wound is suspected to be caused by a malignant tumor, such as squamous or basal cell carcinoma, or if the wound is atypical in appearance, a tissue sample should be taken from the wound or wound edge or both. (Krooninen alaraajahaava: Käypä hoito-suositus,2017.)

## 2.8 Wound assessment

A physical assessment of the skin condition is needed to understand the cause and development of a wound. Basic skin anatomy knowledge is used to assess and classify the wound and define the level of tissue damage. A nurse needs to locate and manage the details of where the wound. They are needed for accurate documentation and consistent care by each provider working with the patient. Describe the location of the lesion by closest anatomic landmark. The wound size is measured with full details about length, width, and depth using consistent units of measure. AN Accuracy in the wound measurements assist in planning appropriate care. (Figure 5, measure the wound with ruler)



*Figure 5. Measure wound with horizontal mattress stitches (Website of Wikipedia commons, 2016)*

The wound bed description gives a consistent approach in defining the tissue types as granulation tissue, slough, and eschar. They are often indicated by the color and type of wound tissue. Tissue color is distinguished viable from nonviable tissue that assists in the management process. The amount of wound exudate or drainage is assessed and described with each dressing change. Including the amount of dressing change needed per week. Excessive exudate can mean infection and a barrier to healing. The smell of

the wound can identify the presence and type of bacteria and is assessed only after the wound is cleaned. The peri wound is the skin around the wound. By assessing color and temperature, described as inflammation or redness, may indicate wound infection or dermatitis. Checking for maceration or denuded tissue is also important for this should prompt an evaluation of the wound dressing for its ability to manage exudate. The wound's chronicity and healing ability can be shown with the condition of the wound margins. Healing can be indicated by flat and pale pink to lavender wound margins. If the patient is experiencing pain, it also may indicate infection, underlying tissue destruction, neuropathy, or vascular insufficiency. Finally, the nurses can interview and assess the patient's knowledges of the disease and wound management. The need for educational activities is important in planning individualized care. (Cathy T. Hess,2012.)

## 2.9 Wound healing process

### 2.9.1 Phases of wound healing

The information of the granulation tissues leading to the next phase of healing will help readers to understand the barriers to healing. Once a person is injured and get a wound, hemostasis is the first reaction to injury. After that, platelets work as key cells to create blood clots to prevent further bleeding and release cytokines needed later for healing. Following by inflammation phase, this is a defensive or reaction phase occurring right after the injury that can last 4-6 days. Inflammatory cells such as leukocytes and macrophages are key cells to destroy bacteria. Pain, heat, redness and swelling characterizes this phase. Here, all factors needed for tissue repair are growth and prepare for proliferation. This is the regenerative or connective tissues phase that will normally last for several weeks. Key cells like macrophages, fibroblasts, immature collagen, blood vessels, and ground substance form granulation tissues to close off the wound. Epithelization ends this phase with the presence of viable, vascular tissues to create a scar. The last phase is maturation, which can last from 21 days to months or even years. Fibroblasts and other key cells reorganize and mature collagen fibres until the scar tissues regain the 80% of the skin's original strength. (Cathy T. Hess,2012.)



### 2.9.2 What delay wound healing

The wound healing can be delayed by many different factors. The most common is desiccation, which is caused by a dry wound environment which result in cells dying from dehydration and will ultimately cause a scab or crust. A moisture-retentive dressing allows wounds to heal faster and less painfully. Infection or abnormal bacterial presence. A systemic or local infection impedes wound healing as there will be drainage or exudate, induration, erythema, or fever. Appropriate antibiotic treatment should be ordered by a physician after a culture identifying the causing bacteria. Urinary and fecal incontinence interrupts the skin's integrity and lead to maceration. Thus, proper skin care is essential for successful skin and wound management. In some cases, the wound appears dead, devitalized tissues are known as necrotic. Slough and eschar are the two types of necrotic tissue that may appear in a wound and slows down healing. Slough is normally yellow, moist, loose, and stringy. Eschar often appears as black, dry, thick, leathery tissue. Both tissues often need to be removed before healing starts. For many reasons, during the healing process, there is excessive or sustained pressure on the wound site. Blood circulation is disrupted when there is too much pressure in the surrounding tissue and delays healing. Even wounds can heal very slowly or not at all if Trauma and edema occurred and repeated. They interrupt the oxygenation and cellular nutrition to the wound. (Cathy T. Hess,2012.)

### 2.10 Materials for wound debridement

No single skin or wound care product provides an optimum environment for skin health or healing of all wounds. It is the nurses' responsibility to understand the characteristics, function, and appropriateness for each patient of the skin care products, dressings, drugs, and devices. (Cathy T. Hess,2012.) Syringe and needles are used to deliver cleaning agents must provide enough pressure to remove debris without presenting trauma to the ulcer bed. (Baranoski, Sharon, and Elizabeth A. Ayello. 2011). In the use personal protective equipment, Lapin sairaanhoitopiirin kuntayhtymä recommended in 2018 that the health care workers choose the appropriate products based on purpose of care. These are gloves, gowns and aprons, footwear. and protective face wear such as full-face shields, visors, goggles, masks,

headwear. Irrigation solutions for cleansing and moisturizing wound includes sterile water or tap water, saline solution (0,9%), Hydrogen peroxide liquid (1-3%) (Baranoski, Sharon, and Elizabeth A. Ayello. 2011). The Sharp and cutting instruments used to remove necrotic tissues can be surgical knife, scissors, scoop curette, ring curette (Figure 6). Forceps and tweezers are used to grab and hold on to wound tissues. (TYKS, Haavatyöryhmä,2011). Local anesthesia such Xylocaine 2% is used to numb the wound area for least in 5 minutes, reducing the pain during procedure. (Pohjois-Savon sairaanhoitopiiri, 2017). The dressing and gauze can be chosen as seen appropriate to size and location of the wound. Manufactures instructions can used in choosing the right dressing. (Etelä-Pohjanmaan sairaanhoitopiiri, 2018).



Figure 6. Disposable dermal curette (Photo by Vo & Pinas, 2020)

## 2.11 Mechanical wound debridement procedure

An optimal wound care will include combination of debridement techniques such as irrigation, wet-to-dry dressing and sharp debridement depending on the state and condition of wound (Vesa Juutilainen, 2011).

### 2.11.1 Wound assessment and wound care planning

When conducting a wound assessment, not only a wound itself is evaluated, but it is necessary to combine comprehensively all the factors that can promote the healing process. Wound care is planned holistically, as wound healing is affected by different factors like immune status, blood glucose level, hydration, nutrition, blood albumin and prealbumin levels, oxygen and vascular supply, pain, cause of wound, age of patient, smoking. The patients' feeling and pain are assessed using a pain scale. The patient is monitored and observed for altered body position, moaning, and sighing. Wound care is planned with a doctor's diagnosis and a prescription of dressing and cleansing materials including frequency of wound care. (Lippincott Williams & Wilkins, 2015, 56-57.)

Wound care is started by examining the wound bed, edges, and environment. Wound is examined after a thorough cleanse. Wound documentation includes extent (length x width cm), depth (dermal, subcutaneous, intramuscular, tendon, bone), cavities and fistulas (direction, length cm), wound surface phenomena (necrosis, fibrin, granulation, epithelialization), the amount, quality and odor of the secretion. (Website of Edis, 2017.)

### 2.11.2 Wound care goal

The main goal of wound care is to lessen bioburden, encourage epithelialization and minimize inflammation by removing necrotic tissues such as slough and eschar from the wound bed. At the same time, moist of the environment is needed to maintain to help the wound heal effectively and reduce pain. This prevents desiccation that causes scabbing and crusting. However, exudate from excess moisture causes peri-wound maceration and increases bioburden in the wound. To remove or decrease the bacterial load from the wound. A systemic or local infection impedes wound healing as there will be drainage or exudate, induration, erythema, or fever. Thus, the nurses need to consider that remove or decrease the bacterial load from the wound. Finally, the goal is set up to prevent the wound recurrence and further tissue damage. (Eric vanBok, 2014.)

## 2.12 Wound debridement implementation

### 2.12.1 Before debridement

The first step in most cases, the procedure must be explained to patient or guardian and their consent obtained. The wound care equipment and materials indicated on the wound care plan will be collected and prepared ready. A clean, bright, and environment for the procedure are designed for the best effects. The patient's privacy needs to be protected and their caring posture arranged for the less uncomforted. Time is set to allow pain medication or local anesthesia to work. Hand hygiene and asepsis during the procedure must be always considered and observed from the beginning till the process ended. The personal protective equipment is indicated by the wound care plan in case of necessity. In addition, a surgical face mask, goggles, and apron are used, if there is a risk of secretions splashing. (Lippincott Williams & Wilkins, 2015, 84-97.)

### 2.12.2 Irrigation

All necessary materials and irrigation solution are collected and made ready by allowing the solution to reach room temperature. The working area is placed with protective linen and emesis basin is put under patient wound to collect the solution during irrigation. At the same time, the patient is positioned to allow the drainage to flow into the basin. The old dressing is removed and discarded with the used gloves to the trash. After that, the new gloves are put on, and irrigating solution is prepared in sterile container. The syringe is filled with prepared solution and connected to the catheter. Gently and slowly, the solution is pumped into a steady, uninterrupted flow into the wound until the syringe emptied. All surface of the wound is covered with the solution moving from clean to dirty wound area to prevent contaminated. The procedure is repeated until the dead tissues and debris are removed from the wound and the solution returns clear. After the wound are cleaned with solution, it is covered

or packed with prescribed dressing as ordered or indicated in the wound care plan. All the dispose of solution, drainage, used equipment and trash bag are discarded into appropriate container. (Lippincott Williams & Wilkins, 2015, 96-100.)

### 2.12.3 Sharp mechanical debridement

The basic instruments recommended for mechanical wound cleansing are the wheel curette, scoop curette, needles, scissors and a surgeon's knife. All appropriate instruments are chosen and prepared for the type of necrotic tissues to be removed. (TYKS Haavatyöryhmä, 2011.)

The type of tissues in and around the wound need to be identified before procedure. After that, the necrotic tissues are removed carefully, the healthy new tissues should be avoided damaging. All the operations are performed from the clean areas to the dirty areas. The characteristics of wound tissues are identified to decide whether to remove or protect the tissue. The different types of tissues in the wound needs to be clearly distinguished in order to be sure which ones need to be removed or protected. Epithelial tissue that is the out layer of the skin appears pink. The new layers of tissues are thin and must be protected. Granular tissue appears red. The new granular tissues must be protected and kept in moist environment. However, excess moisture damages the tissues. Hyper-granulation tissue light or dark red in color and grows above the level of the skin. It is an overgrowth of granulation tissue, which prevents wound epithelialization, is often due to excessive moisture in the wound. It must be removed mechanically with a curette or a spatula. Fibrin coat or Slough tissue is yellow and can be soft or tough depending on wound moisture. It must be softened and mechanically removed. Eschar is black necrotic tissue. Depending on the wound moisture, it can be tough or soft. Eschar should not be removed or softened with prior to a vascular surgeon's examination or intervention. Bone and tendon tissues. Bone feels hard against sharp instrument while healthy tendon is white and fibrous. Keep bone and tendon tissue moist during the procedure. Infected wound tissue is reddish, hot, and swollen around the wound. Wound secretion is odorous there is increased pain, they need to be removed or decreased bacterial load. (Krooninen alaraajahaava: Käypä hoito-suositus,2017.)

All dead tissues cannot be attempted to clean at once. The combination of debridement methods such as irrigation, wet-to-dry and hydrotherapy biological, enzymatic and autolytic should be used for the best results. The procedure must be stopped if excessive pain or bleeding occurred, especially if it is not possible to determine the tissue type or is suspected to be malignant. In case of wound bleeding, the wound is pressed with a dry gauze or moistened hydrogen peroxide solution gauze. After that, the procedure is documented, and all physician and other health care provider are notified with any unusual changes. (Vesa Juutilainen, 2011.)

#### 2.12.4 Wet to dry dressing

The first step for wet to dry dressing debridement is preparing the dressing tray with instruments needed for the procedure. Then proceed to gently and slowly removing the dressing from the wound. The necrotic tissues are observed during the process if they are torn away with the gauze. The used dressing and gloves are placed into the rubbish bag with hand hygiene performed after that. The basin will be filled with the sterile, wetting solution. Once again, clean gloves are put on to place the dressing to the solution or pour the solution on the dressing. This procedure can be skipped if a ready packed moisture dressing is used. The dressing is squeezed and gently applied to the wound to cover all the exposed surfaces. The dressing needs to be moist but not dripping. This moisture will help healthy tissue growth. A second moist dressing can be applied depending on the status of the wound. Following by a dry and sterile dressing is applied on the top of wet dressing. A dry dressing is added if there is leakage to keep the outside area dry. (Figure 7, the dressing is applied on the top of wound). After the last dressing and working place tidy up, the gloves are removed, and hand hygiene repeated. The whole procedure is documented and notified to physicians and other health care provider of any unusual changes. (Susan C. deWit and Patricia A. Williams, 2013.)



*Figure 7. Chronic wound with dressing after wound care (Photo by Vo&Pinas, 2020)*

#### 2.12.5 Pain management

Managing pain during wound debridement begins with identifying the reasons for pain whether pain it is background pain, breakthrough pain, procedure pain or operative pain. Pain is assessed the by type, duration, impact, palliative factor, qualities of pain, region, severity, temporal aspects. Non-pharmacological pain intervention such as communicating with the patient to help minimize anxiety. Other methods include the use of music, relaxation, meditation, imagery, mild exercise, rest, adjusting positions and physical modalities. Pharmacological treatment such as analgesics is started from mild to strong as prescribed by a doctor (NSAID, opioid, narcotic). Choosing the appropriate dressing type to reduce the pain in the wound. Decreasing the pressure during irrigation reduces procedure pain. (Kari Becherta & Steve E.Abrahamb , 2009.)

#### 2.12.6 Documentation

Documentation is an essential component of wound care should thoroughly and accurately do. Wounds should be documented as soon as the wound is observed,

weekly, with each dressing change, upon any significant change in the wound, and upon healing or discharge. The initial assessment and documentation are used as baseline comparison for all future assessments. It is recommended that each agency have a consistent style and format for wound documentation. All facilities should follow the wound assessment policy as determined by their setting-specific regulations. Ulcers or wounds identified first patient contact should be assessed and documented at least within the first 24 hours. (Baranoski S. and Ayello, E, 2015,294.)

#### 2.12.7 Evaluation

Wound debridement procedure outcome is evaluated using aspects such as the wound bed, edges, secretion, depth, dimensions, pockets, cavities, fistulas, odor, pain and wound environment. The treatment plan is assessed for the need of changes by comparing the current state of the wound from the previous records. Indicators of healing such as pink granulation tissues appearing is identified. The patient's level of comfort during the different procedures is monitored. The patient's ability to self-manage the wound is assessed as well as including a counselling about the wound care plan for the patient if possible. (Etelä-Pohjanmaan sairaanhoitopiiri, 2020.)

## 3 PURPOSE AND OBJECTIVE OF THE PROJECT

### 3.1 Purposes

In the implementation of this project we will find out what are the essential information about wound debridement necessary for Nursing students of SAMK. This project purpose is to produce a comprehensive student's booklet to mechanical wound debridement as complementary learning material for SAMK nursing students.



### 3.2 Objectives

This project objectives are to facilitate nursing students learning experience in their placements in mechanical wound debridement. As researchers we intend to acquire profound understanding on wound care especially mechanical wound debridement. In addition, gain critical analyzing skills of existing data and information.

## 4 PROJECT PLANNING

### 4.1 The methods used in the project

A research project includes doing multiple tasks and activities following schedules and deadlines. This can be over-whelming to new researchers especially students and cause delays in the study. There are many techniques project managers use to schedule their project activities so that everything lands where it's supposed to, and the project fits the approved timeline. The critical path method is one of these. The concept of this method involves four steps including breaking down tasks into hierarchy, noting duration for each task, identifying task dependencies, and marking the project milestones. (Website of project manager, 2020.)

In order to conduct a successful project, competence in task management is a key element. Utilizing project organizational tools is a beneficial in keeping track of the project progress. They simplify enrolment, data collection, and access to results. The tools consist of protocol and eligibility checklists, event calendars, screening and enrolment logs, instrument scoring tables, and data summary sheets. (Aycock, D. M., Clark, P. C., Thomas-Seaton, L., Lee, S.-Y., & Moloney, M. 2017.)

## 4.2 Project phases

The project organizational tool used was a project timetable and event calendar to document the development of the project and as reflective materials. The project was initially planned with a list of tasks to be completed. The major tasks were later divided into smaller tasks and divided into 6 phases. The first phase of the project is planning and initiation where in the researchers had designed the structure of the project which included a discussion of the topic, objectives and goals, and methods to be used. The plan is initiated, and intensive research is done about the key concepts which is the main tasks of the second phase. Product production begins in the third phase using data collected from the earlier phase. The product is distributed to the target group for evaluation using a form to collect feedback. The fourth phase also includes interpretation of the feedbacks. The fifth phase is the report where a detailed description of the project process is written as thesis. The final phase is a reflection on the project process and the writer's experiences which terminates the project.

The phases are arranged chronologically according to target date of completion but can overlap to save time or allow for delays. Certain risks can give rise to uncertainty of the situation, but the purpose of risk identification is to take action that results to positive gains. Risks is defined as anything that can influence the fulfilment of objectives. (Paul Hopkin, 2012, 11-17). The risks identified while conducting the research involved discrepancies in acquiring data such obsolete, irrelevant and unreliable information wherein we intend to use by refined search techniques. Unintentional plagiarism is also another risk when using the works of others which will be avoided using the plagiarism detection software (Urkund). Equipment and materials in producing the visual part of the booklet can become difficult to avail. Alternative sources can be used using internet sources. Voluntary feedback is needed from students and there is risk that there will be limited participants. This may be due to scheduling conflicts and timeline constraints. Allotting enough time for feedback response will be noted in the project timeline (Table 1).

Project Phase and Date	Task
Project plan and initiation September 2019 - January 2020	<ul style="list-style-type: none"> <li>• Project topic is selected, and literature search is done.</li> <li>• Objectives and goals are set.</li> <li>• Stake holders and target group is identified</li> <li>• Research and project methods are chosen and discussed.</li> <li>• A project plan is completed</li> <li>• Project plan is approved and initial meeting with tutor.</li> <li>• Acquired project implementation permit from the university.</li> </ul>
Research February-August 2020	<ul style="list-style-type: none"> <li>• Key information is collected</li> <li>• Analyzing and verifying content, referencing sources,</li> <li>• Theoretical background written making</li> <li>• Collecting and acquiring images for the booklet.</li> <li>• Summarizing key concepts.</li> </ul>
Product production August-October 2020	<ul style="list-style-type: none"> <li>• Booklet layout was designed and sample booklet in soft copy is produced.</li> <li>• The first product and theoretical background was sent to supervise teacher</li> <li>• Discussing with supervise teacher</li> <li>• Revision booklet was sent to teacher</li> <li>• Feedback was collected from teacher and tutor with permission.</li> <li>• The booklet was edited and finalized.</li> </ul>

Product evaluation October-November 2020	<ul style="list-style-type: none"> <li>• Evaluation questioner is created and approved.</li> <li>• The product is distributed to the target group along with evaluation questioner.</li> <li>• Feedback is collected, interpreted and summarized.</li> <li>• Meeting with tutor for feedback and finalizing report.</li> </ul>
Project closing: November 2020	<ul style="list-style-type: none"> <li>• Final discussion about the project output, reflection and project termination.</li> </ul>

*Table 1. Project phases and timeline*

Included in this project planning is identifying the factors that might affect the outcome of the project either positively or negatively such as our resources and risks. The student shall write the thesis quite independently but, on the other hand, receive supervision and advise to support his or her work. Independent working does not mean that the student must or should not ask for advice at any given stage. (SAMK website 2020). The university provides students various services to provide guidance and support as we conduct our thesis. These include library services, university website, and access to simulation rooms and equipment's. In addition to our resources we have access the different databases such as CINAHL and PubMed. Government and public health websites such as the European Wound Management Association (EWMA), Duodecim, Käypähoito, and Terveystyöskylä was utilized. Various search engines such as Bing or google search, and google scholar were used to find the resources from websites as well as photographs and images used in making the booklet.

## 5 IMPLEMENTATION PLAN OF THE PROJECT AND RESULTS

### 5.1 Theoretical background

Searches done about mechanical wound debridement in Finnish databases like library searches and theseus.fi resulted to very limited literatures. There was a fair amount of bachelor's thesis written by other's universities but there has not been any recent works done in SAMK. Thesis written were mostly project thesis and qualitative studies. A project done with Tampere university of applied sciences was conducted with the purpose to create a wound care information booklet for a home care institution. A review of literatures was done to gather the information for theoretical background and booklet itself. The project's key concepts were home care, holistic care of wound care patient, wound healing and functions and structure of the skin. (Järvinen O. 2015).

Broader searches on international databases like PubMed and CINAHL results to numerous journal articles and metanalysis about wound care. An article from the journal of community nursing discussed on why wounds become chronic at a cellular level including some of the contributory systemic factors that contribute to a wound becoming chronic, such as unrelieved pressure, unmanaged venous hypertension and poorly controlled diabetes. It explored local barriers to chronic wound healing, such as excessive exudate, high bacterial burden and the identification of local and systemic infection. It concluded with advice on how to identify biofilms in chronic wounds, together with suggestion on how to remove them, based on latest guidance. (Brown, A. 2019.)

Literature retrieval using similar keywords such as wound care, wound debridement, educational materials and chronic wounds indicated that there is enough literature available to support theoretical background for the project. Finnish guidelines Finnish health care guidelines are found in Käypähoito website as well Regional hospitals and health centers in Finland usually have their own guidelines to specific care. The writers used these guideline's resources and were able to trace English sources such as the ENWA debridement guidelines.

## 5.2 Writing the booklet

The objective of the project is to produce learning material for student nurses regarding wound debridement. A written booklet was the chosen product of the project. The student's booklet to debridement was planned initially with a layout of main topics. The main topics were definition of wound debridement, anatomy of the skin, chronic wounds, wound assessment, and procedures for wound debridement. After the indebt research on the main topics, the sub-topics were included such as classifications of wound debridement, skin functions, types of chronic wounds, wound healing process, materials for debridement. The theoretical background information was then expanded to discuss the main and subtopics of the booklet. The booklet was initially had 10 to 15 pages wherein the text from original resources has been summarized for concise reading. The procedures for wound debridement was presented in a table. The booklet also included photos of materials and wounds personally taken by the writers. Patient privacy was observed during the photography of wounds and procedure. A hand drawing of the anatomy of the skin was also included which was later replaced by a website sourced image because of difficulties in image editing. The search tool googles pictures had resulted to thousands of images, most of pictures were under commercial licenses and patent. Thus, limiting the searches for creative common licenses only. The images were taken came from the website of Wikipedia commons, which allows sharing of copies and redistribution of the materials in any medium or format. The website also adapts, remix, transform, and build upon the material for any purpose, even commercially. (Website of Wikipedia commons, 2020). The student's booklet was submitted to the writer's thesis advisor for feedback.

After the advisor's feedback, the booklet was revised. Main revision was centered in the inclusion of Finnish resources and standards. There are differences in mechanical debridement classifications in English and Finnish resources that needed to be combined. The definition wound and chronic classification was also explained further. The material and procedure for wound debridement were also expanded to make the instructions clearer to the readers. The debridement techniques were discussed separately in more details following Finnish standard instructions.

### 5.3 The descriptions of the target group

The product of the project is intended to benefit nursing students in the English curriculum of Satakunnan Ammattikorkeakoulu department of health and wellness in Pori campus. Majority of the group are international students and have different levels of Finnish language skills. The learning material produced will complement their learning experience in wound care.

### 5.4 Feedback collection and results

It is important for any evaluation to include learners because they are the main consumers of education and best placed to evaluate the quality of their education and teaching (Parkinson, B. 2016). In order to ensure quality of the project product an assessment plan must be agreed to evaluate the research outcome and the learning progress of the researchers. The thesis adviser will be informed about project evaluation plan and guide in setting criteria. A feedback from the target students in form of questionnaires with multichoice answers will be requested. The questions will ask to score the booklet in terms of its effectiveness, relevance and preciseness of information included in the booklet.

The collection of feedback was be voluntary and anonymous as to maintain validity of results. The booklet was sent to the second, and third and graduating English nursing students by email. The email included the link to the online feedback form from google survey. The feedback form asked the evaluators to rate the booklet in six competences that were overall verdict, structure, layout, preciseness and comprehensiveness. The evaluators were given four choices to rate the competences which were excellent, average, good, poor. The last question was free text feedback which asked what they think could be improved (Appendix 1).

The form had been sent by an email twice in two weeks. As a result, there were 11 responses from three English nursing groups. One of them was not able to open the file, so there were ten in total. The evaluators rated majority of the competencies as good, according to the results of the feedback, the booklet was good in terms of its

overall verdict, structure, layout, content relevance, precision and comprehension. The booklet content relevance received a poor rating from one of the evaluators. There were four written feedbacks, one mentioned that the file could not be opened. The other commented that the writers did a nice job. One stated the booklet should have been written in a shorter form rather than an extended text in thesis format. The last one asked for more pictures (Appendix 2).

The subscriber had also given feedback using a form that asked them to rate the following statements. 1. The thesis answered our questions. 2. The thesis product can be used in work life. 3. The thesis displayed ability of creative solutions. 4. The thesis displayed work life perspective for reliable solutions. 5. The students displayed independence and self-reliance in the thesis process. 6. We advised the students from our own part of in the progress of the thesis. The subscribers choose from 4 options to rate the statements which were 1. completely agree, 2. Somewhat agree, 3. Somewhat disagree, 4. Completely disagree. The subscribers completely agreed to statements 1, 4, and 6, while they somewhat agreed to statements 2,3,5. The subscribers wrote a free text feedback which stated that the booklet can be used after the corrections regarding layout, reference and resource markings on the text. The pain management instructions needed update as it was from 2009 (Appendix 3).

## 6 EVALUATION

The project topic was selected from a list of thesis request from different health care teachers of SAMK. The writers were interested in topic because of previous experiences to wound care and chronic wounds during clinical practice in homecare and elderly care. The project appealed to the writers as valuable opportunity to gain expertise and give path to specialization on wound care. They were also aware of the future demand on skilled nurses regarding the topic of wound care, as there is an increase of elderly population who are the most at risk of chronic wounds. International literature searches revealed encouraging amounts of resources and while Finnish



sources produced limited literature written in English. The preliminary literature search implied a demand for more research on the topic and that there are enough resources available to conduct a reliable research with adequate references. After the topic selection, the writers established the project purpose and objective. The project purpose was agreed to be in a learning material in booklet form because other forms of learning materials like video or power point presentation will involve a lot of time and resources to make and may result to a fast-paced presentation of the topics. The booklet therefore allows the reader to study the topics on their own pace and return to specific topic easily. This form of learning material was suitable for the topic as it involved detailed discussions of the principles of wound care.

The critical path is the selected methodology to conduct the project. The writers were able to use the concepts of this method starting from identifying the main tasks and breaking them down to smaller tasks then assigning timeline for each task. By identifying task, dependencies and marking the project milestones the writers were able to follow the progress of the project. During the planning of the project, the writers have allowed time for delays in setting the timetable, which had been helpful during the difficulties, faced in with the COVID –19 pandemic. The writers had decided to take a break during the summer but were able to keep in contact while doing individual research.

Writing the booklet content was challenging because of translation inconsistencies. The booklet was written in English however, SAMK teachers who ordered the material for this project required Finnish guidelines and resources. The writers had difficulties translating the concepts of wound debridement and chronic wounds because there were different ways to classify techniques of chronic wounds and categorize chronic wounds. The booklet contained the integrated information from both English and Finnish resources. The booklet does to contain all the procedure for all the types of debridement such as device assisted, radical revision, biological, autolytic and enzymatic, which was not commonly performed by unspecialized nurses. The procedures for irrigation, wet-to-dry and sharp debridement were included because these are the immediate and most common techniques recommend for chronic wound care.

The booklet was able to include photos and images to support understanding and clarify concepts of chronic wounds. Pictures taken to show the procedures of debridement but were later removed because the images could be misleading to untrained readers. The writers were unable to retake the pictures of the actual procedures.

## 7 CONCLUSION

The purpose of the project is to produce a complementary learning material for SAMK nursing students regarding mechanical wound debridement. The writers were able to complete the purpose of the project by doing theoretical research using reliable and updated resources about chronic wounds and wound debridement. The booklet was able to contain relevant sub-topics including anatomy of the skin, wound assessment, wound healing. The procedure of the most common wound debridement techniques was discussed. The booklet was revised and edited to improve quality of contents and include Finnish guidelines. The finalized booklet was sent to the subscribers for feedback, which concluded that the booklet could be used as a complementary learning material after some minor corrections with in-text referrals and an update to pain relief referral, which was from 2009. This referral has been included because the project has been launched in 2019 wherein the reference was 10 years old. The writers have considered the reference valid, however upon completion of the project in 2020 the reference has become outdated. Overall, the feedback form indicated positive response to the booklet. The booklet produced was sent to the target students for feedback where in majority responded well to all the criteria of the form. Positive feedback from students indicate that they find the booklet good in overall verdict, structure, layout, preciseness, and conciseness. However, the results also indicated a poor rating in content relevance.

The objectives of the project to facilitate nursing students learning experience in their placements in mechanical wound debridement can be concluded to have been partially achieved considering the positive feedback from both the subscribers and the target

students. The booklet produced needed updates to the pain relief references. Some suggestions from the students can be considered in improving the booklet such considering a sorter format of the text. In conducting the project, we learned to critically analyze the project process and methods. We learned to carefully evaluate existing data and information to be able to pick out relevant information needed for the booklet. As researchers of the project we had acquire profound understanding on wound care especially mechanical wound debridement though reading various kinds references from starting from English sources and later mostly from Finnish sources.

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## A STUDENT'S BOOKLET TO MECHANICAL DEBRIDEMENT OF CHRONIC WOUND

As part of our project, we would appreciate it if you could take your time filling in this form after reading all contents of the booklet.

{All feedback will be treated in the strictest of confidence.}  
VO CHUONG & PINAS GRAILE, 2020.

Please stick to an appropriate box according to your opinion about the booklet.

	POOR	AVERAGE	GOOD	EXCELLENT
Overall Verdict	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Structure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Layout	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Content relevance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Preciseness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comprehensiveness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

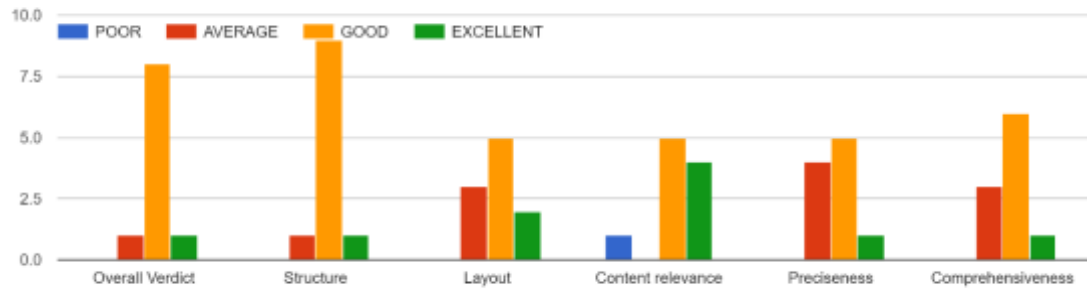
What do you think could be improved?

Your answer

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## APPENDIX 2

A student's feedback response chart





## APPENDIX 3

### Subscriber's feedback relating the Booklet

Opinnäytetyön nimi (opiskelija täyttää): A student's booklet to mechanical debridement of chronic wound

Valitkaa seuraavista vaihtoehdoista sopiva laittamalla rasti ko. kohtaan.

	täysin samaa mieltä	jokseenkin samaa mieltä	jokseenkin eri mieltä	täysin eri mieltä
Opinnäytetyö vastasi tarpeitamme.	x			
Opinnäytetyötä/ opinnäytetyön tuloksia voidaan hyödyntää työelämässä.		x		
Opinnäytetyö osoittaa kykyä luoviin ratkaisuihin.		x		
Opinnäytetyö osoittaa kykyä työelämän näkökulmasta uskottaviin ratkaisuihin.	x			
Opiskelija kykeni itsenäiseen ja itseohjautuvaan työskentelyyn opinnäytetyöprosessissaan.		x		
Ohjasimme opiskelijaa omalta osaltamme opinnäytetyön etenemisessä.	x			

Vapaamuotoinen palaute:

Tämä palaute koskee tuotosta (=Booklet). Vihko/Kirjanen voidaan ottaa käyttöön pienten korjausten jälkeen, jotka liittyvät layoutiin ja lähteiden merkitsemiseen sekä lähdeviittausten merkitsemiseen tekstissä. Myös kivun hallinnan osio tulee päivittää ajankohtaisiin ohjeisiin (nyt lähde vuodelta 2009).