Satakunnan ammattikorkeakoulu
Satakunta University of Applied Sciences

AMBO OYANG EBILE QUINNETTE

A Digital Guidebook of Typical Hematological Disorders for Nursing Students who are having an Internship in a Hematological unit.

DEGREE PROGRAMME IN NURSING
2024

ABSTRACT

Ambo Oyang Ebile Quinnette
A Digital Guidebook of Typical Hematological Disorders for Nursing Students who are having an Internship in a Hematological unit.
Bachelor's thesis
Degree programme: Bachelor in nursing
Month Year: May 2024
Number of pages: 30

In the ever-evolving landscape of healthcare, the globalization of nursing practice has become a significant phenomenon, prompting an influx of nursing students seeking hands-on experience through internships in different healthcare settings. This guidebook was tailored to serve as a broad resource for international nursing students starting internship in a hematologic ward.

The purpose of this thesis was to produce an easy-to-understand, evidence-based digital guidebook for nursing students providing orientation on how to navigate the hematologic ward as an intern. Concerning the purpose, the objective was to provide nursing students with a thorough orientation to the specific challenges, treatments, and patient care protocols within a hematological ward using a guidebook.

The guidebook gave a brief description of common hematological disorders, covering their symptoms, clinical manifestations, treatment approaches and most importantly, the role of the nurse/student in caring for hematologic patients. Designed and written with the international nursing student in mind, it aimed to build-up understanding and confidence when dealing with hematological diseases. The nurse's role and guidance of hematological patients' section, included at the end of the guidebook, provided important insights and guidance to provide students with the entry level knowledge needed for a successful and enriching internship. This guidebook eased transition into the clinical setting thereby promoting professional growth and patient care.

The final product of this thesis is a guidebook created with FlipHTML5 software. The guidebook contains 22 pages, cover page included. It is divided into seven different chapters, starting with the introduction, insights into different hematogical disorders (Leukemia, myeloma and Lymphoma), medical treatment options and the nurses' role and guidance for hematological patients. The digital guidebook can be used on all electronic devices like mobile phones, laptops, iPad, and computers.

Keywords: Hematological disorders, internship in hematological ward, digital guidebook

Contents

1 INTRODUCTION 4
2 THEORETICAL BASIS OF THE PROJECT 5
2.1 Hematological Disorders 5
2.1.1 Leukemia 6
2.1.2 Lymphoma 8
2.1.3 Myeloma 8
2.2 Aseptic rules and infection control in hematologic wards 9
2.3 Guidebook as an important educational material 10
3 PURPOSE AND OBJECTIVES OF THE PROJECT 11
4 PROJECT METHOD 11
4.1 Description of the target group 11
4.2 Resources, personnel, and risks 12
5 THESIS REPORT 13
5.1 Theoretical description of the methods used in the thesis. 13
5.2 Stages of the project 13
5.2.1 Initiation 14
5.2.2 Planning 14
5.2.3 Execution 15
5.2.4 Implementation 15
5.2.5 Closing 15
5.3 Literature retrieval 16
5.4 Description of the Digital guidebook 18
5.5 Evaluation 19
6 ETHICAL CONSIDERATIONS 20
7 DISCUSSION 21
8 CONCLUSION 23
REFERENCES 25
APPENDIX 1: AI PHOTOS 28

1 INTRODUCTION

Hematologic disorders cover a wide range of diseases related to the blood and its components, which include red blood cells, white blood cells, platelets, and the bone marrow. Understanding these conditions is crucial for nursing students embarking on internships in hematologic units, as they will come across patients with various blood-related issues. The clinical competence of Registered Nurses is a recurring theme in nursing research studies (Gunawan et al., 2020, pp. 623-624). Clinical experiences improve nurses' competence, affecting quality, standards, and patient safety (Salminen et al., 2010, p.235). The focal point of this project was the creation of a comprehensive digital guidebook tailored to enhance the learning experience and skills of international students during their internships.

The theoretical foundation for this project was rooted in the recognition of the challenges faced by nursing students aiming to carry out internships or specialize in hematologic nursing after graduating. Nurses should get Education and experiences from different clinical settings that prepare them for the readiness of work (Currie et al., 2022, p.284). The World Health Organization (WHO) reported that there are almost 27 million nursing and midwifery workforce globally, yet there is a more than 50% shortage of nurses and midwives (WHO, 2022). By looking at these theoretical perspectives, this project sought to bridge a gap between theory and practice thereby offering a practical solution (guidebook) to facilitate the integration of nursing students into Finnish hematologic wards.

The purpose of this thesis was to produce an easy-to-understand, evidence-based digital guidebook for nursing students providing orientation on how to navigate the hematologic ward as an intern. Concerning the purpose, the objective is to provide nursing students with a thorough orientation to the specific challenges, treatments, and patient care protocols within a hematologic ward using a guidebook.

This thesis will be conducted as a project thesis, with tasks to produce an easy-to-understand evidence based digital guidebook for international nursing students starting internship in the hematologic ward of a large teaching hospital in the south of Finland. With a mission to provide orientation information to students in the form of a digital guidebook, to ease their transition into the hematologic ward as interns. This project was conducted in collaboration with the hematologic ward of a large teaching hospital in the south of Finland.

In this thesis, the author used openart.ai and perchance.org (AI image generator) to create images for the digital guidebook and Grammarly to check the grammar and English language used. These AI applications have been used properly, while paying attention to data protection. AI was not used to write this thesis.

2 THEORETICAL BASIS OF THE PROJECT

The theoretical basis of this project is grounded on the principles put forward in the following key concepts, hematological disorders, aseptic rules/infection control in hematological wards, and the guidebook as an important educational material. The key concepts are further explained below.

2.1 Hematological Disorders

In the hematologic ward, hematological disorders including hematologic cancers consist of abnormalities in blood and blood-forming tissues. The main types of hematological disorders being treated in this ward are leukemia, lymphoma, and myeloma. All these cancers have different subtypes depending on the blood cell abnormality. Below is an overview:

2.1.1 Leukemia

Leukemias originate from early stem cells, i.e. they are clonal malignant blood diseases. Leukemias are divided into chronic and acute leukemias. They are further subdivided according to the differentiation of malignant cells myeloid and lymphatic leukemias, which are often further subdivided into separate subtypes according to clinical features. Leukaemia originates in the bone marrow (Ahonen et al., 2012, p.407)

Acute Leukemia

Acute lymphocytic leukemia (ALL) is a rapidly progressing cancer of the white blood cells, particularly lymphocytes. It is more common in children. On the other hand, Acute myelocytic leukemia (AML) begins in early myeloid cells. These are cells that become white blood cells (other than lymphocytes), red blood cells, or platelet-making cells. It's the most common type of leukemia in older people. (*Leukemia: ALL vs. AML*, n.d.)

In acute leukemias, blood cells do not form normally. Instead, blast cells or immature white blood cells proliferate in the bone marrow and migrate from there to the bloodstream and the rest of the body. The causes of acute leukemias are not known, but there are several risk factors for developing the disease. These include ionizing, radiation, some chemotherapeutic agents, i.e. drugs that inhibit cell growth, some chemicals, smoking, and some hereditary or genetic factors that can damage cells. According to Jantunen (2010, 143-144), the above-mentioned risk factors do not explain the development of acute leukemia in most cases but are probably due to the interaction of many factors in a genetically susceptible patient. (Ahonen et al., 2012, p.407-408.)

The symptoms of acute leukemia arise when malignant cell growth occurs in the bone marrow faster and more than normal blood formation. Symptoms are variable and non-specific, often lasting a few days in patients' days or weeks before seeking treatment. Sometimes acute leukemia is detected in an asymptomatic patient on a blood count taken for another cause (Ahonen et al., 2012, p.401, p.409.)

Lack of healthy and functional blood cells and high levels of immature blasts in the blood will cause anaemia, i.e. low haemoglobin or red blood cell count, neutropenia, i.e. a lack of neutrophils, and thrombocytopenia, i.e. low platelets. These in turn lead to individual symptoms such as bruising, bleeding from the nose and gums, increased menstrual flow, and general symptoms such as abnormal fatigue, unexplained loss of performance, and recurrent and prolonged infections. (Ahonen et al., 2012, p.401, 409; Jantunen 2010, p.144).

The diagnosis of acute leukemia comes as a surprise to most patients. Patients have little time to deal with the news, as treatments have to be started,usually as soon as possible. Treatment involves a combination of chemotherapeutic agents to achieve remission, i.e. the best possible cure for the disease. Once remission is achieved, the patient's quality of life usually improves. During remission, treatments are continued to prevent relapse (Jantunen 2010, p.145)

Chronic Leukemia

A slowly progressing cancer that primarily affects mature lymphocytes, and it is more common in adults. In chronic myeloid leukemia, white blood cells called neutrophils are increased. According to Salonen (2014a), the cellular changes leading to disease onset have been well understood. Chronic leukemias are often slow progressing and asymptomatic for a long time, even if the disease has already been diagnosed by blood tests. As the disease progresses, the patients show symptoms like leukocytosis, an abundance of white blood cells, anemia, and sometimes night sweats, fever, malaise, and weight loss. A typical finding is an enlarged spleen on ultrasound and possible resulting symptoms. (Salonen 2014a).

Chronic myeloid leukemia has three phases in the course of the disease, which are chronic phase, accelerated phase, and transformation into acute leukemia a so-called blast crisis, in which more than 20% of the white blood or bone marrow cells are blast cells. In a healthy person, 5% of white blood cells are blast cells.

Without treatment, the blast crisis phase leads to the patient's death. (Ahonen et al., 2012, p.408-410.)

2.1.2 Lymphoma

Lymphoma, or lymph node cancer, originates in lymph nodes or lymphatic tissues in organs. Lymphoma arises when healthy lymph cells are transformed into malignant cells. The disease is divided into two main types, which are Hodgin's disease and non-Hodgin's lymphoma, which is further divided into subtypes (Salonen 2014d.)

The cause of lymphoma is usually unknown, but rare congenital or acquired immune deficiencies, such as HIV infection and post-transplant immunosuppression, as well as autoimmune diseases, increase the risk of non-Hodgkin's lymphoma. Some bacteria, such as helicobacter, may influence lymphoma in the lymphoid tissue of the area of the body where the bacterium is present. However, there are no actual prevention methods for lymphoma.
(Ahonen et al., 2012, p.413-414.)

2.1.3 Myeloma

Myeloma is a malignancy of the blood and bone marrow plasma cells blood disorder. It can lead to bone damage. The disease can spread to the vertebrae, ribs, skulls, pelvis, and long bones of the limbs, causing fractures, and resulting in pain in different parts of the body. In myeloma, calcium is released from the skeleton into the bloodstream, causing increased blood calcium levels, and resulting in symptoms such as severe fatigue or inflammatory disease. Kidney failure and anaemia are also common symptoms. The disease is therefore often diagnosed as anaemia, or the cause of the elevation in the blood count, i.e. the elevation in inflammation. Examinations also often reveal an increase in protein in the patient's blood or urine (Ahonen et al., 2012, p.417; Salonen 2014).

According to Salonen (2014), when a patient with myeloma is asymptomatic treatment is not needed, but regular follow-up in outpatient clinic visits is important. Too early treatment will cause side effects for the patient, and treatment has not been shown to have a life-prolonging effect. In most cases, treatment is palliative. The treatment of the symptomatic patient is based on

the use of various drugs, and combinations of different drugs, considering the individuality and the underlying disease.

Diagnosis of hematologic disorders commonly involves a combination of clinical evaluation, blood tests, bone marrow biopsy, imaging studies, and genetic testing. Treatment varies depending on the specific type and stage of the disease and may include chemotherapy, radiation therapy, immunotherapy, stem cell transplantation, and targeted therapies. Early detection and the right diagnosis are pivotal for the effective management of hematological cancers.(Jameus et al., 2021)

2.2 Aseptic rules and infection control in hematologic wards

Infection is a frequent complication and a leading cause of morbidity and mortality in patients with hematologic malignancies (Nucci et al., 2018). Aseptic rules and infection control are important in hematologic wards to prevent the spread of infections, especially in patients with compromised immune systems. Here are some key principles and practices students need for maintaining aseptic conditions in hematologic wards.

Personal Hygiene and handwashing remain the simplest and most effective measures to prevent the acquisition of organisms by patients. Patients should wash their hands before eating, inserting, or removing contact lenses, after using the restroom, coughing, blowing their nose, sneezing, and after touching an animal. Also, healthcare workers should wash their hands between patients. All surfaces should be thoroughly cleaned, including wrists, back of hands, palms, fingers, and fingernails should be trimmed always, preferably with an alcohol-based hand rub. However, if the hands are visibly dirty or stained with blood or body fluids, soap and water are best for cleaning hands. Additional precautions include the removal of rings before handwashing, keeping nails short and clean, and avoiding the use of artificial nails as they may carry pathogens. (Nucci et al., 2018, p.4). Healthcare personnel should wear appropriate personal protective equipment (PPE), such as gloves, gowns,

masks, and protective eyewear when handling infected patients or their blood products.

Regular environmental cleaning and disinfecting of surfaces, and medical equipment used on patients is very important. Pay special attention to high-touch surfaces, such as doorknobs, bed rails, and light switches.

Invasive procedures that break the integrity of natural barriers such as skin and mucosa should be avoided when possible (Nucci et al., 2018). Cancer patients frequently require central venous catheters for therapy and parenteral nutrition and are at high risk of central venous catheter-related infections (CRIs)(Kredo et al., 2016), therefore healthcare workers need to follow strict aseptic guidelines in taking care of these catheters.

Antimicrobial, antifungal, and antibacterial prophylaxis are also used by qualified healthcare professionals when prescribed to prevent infections for patients in the low cell phase. Isolation room protocols and the use of appropriate signage need to be put in place to alert healthcare workers and visitors.(*Isolation Rooms or Areas*, 2014)

By following these aseptic rules and infection control measures, students in hematologic wards can minimize the risk of infections and provide a safer environment for patients with compromised immune systems.

2.3 Guidebook as an important educational material

The purpose of this thesis was to produce an easy-to-understand, evidence-based digital guidebook for nursing students providing orientation on how to navigate the hematologic ward as an intern. A guidebook is a book that gives useful information about a particular subject (Merriam-Webster 2022).

In healthcare, clinical guidebooks play a crucial role by providing healthcare professionals with evidence-based information and practical guidelines for patient care. These guidebooks are valuable resources for clinicians, nurses,

physicians, and other healthcare practitioners, as they help ensure that medical decisions and interventions are based on the latest research and best practices. Guidelines have a range of purposes, intended to improve effectiveness and quality of care, to decrease variations in clinical practice and to decrease costly and preventable mistakes and adverse events. They generally include statements of expected practice; provide benchmarks or standards against which individuals can audit; compare and potentially improve their practices; or guidance regarding undertaking particular tasks. (Kredo et al., 2016, p. 123.) In the context of this thesis, the guidebook will serve as educational and training material, for healthcare professionals, especially students or new nurses in training. It provides a structured and organized source of information for learning and staying updated on medical practices.

3 PURPOSE AND OBJECTIVES OF THE PROJECT

The purpose of this thesis was to produce an easy-to-understand, evidence-based digital guidebook for nursing students providing orientation on how to navigate the hematologic ward as an intern. Concerning the purpose, the objective is to provide nursing students with a thorough orientation to the specific challenges, treatments, and patient care protocols within a hematologic ward using a guidebook.

4 PROJECT METHOD

4.1 Description of the target group

A target group refers to the specific audience or set of individuals for whom a project is intended to deliver its outcomes or benefits. (Hinze, 2017). This project thesis was designed for English-speaking nursing students in Finland who

intend to carry out an internship in a hematology ward and who have limited familiarity with the Finnish healthcare system and cultural practices in Finland. Newly graduated nursing students who also intend to specialize in hematology were a sub-target group, and this guidebook may probably assist them theoretically and practically.

4.2 Resources, personnel, and risks

Resources used for the implementation of this project included were laptops, notebooks, evidence-based information from websites, databases, and articles, and information from a large university hospital in the south of Finland. This project was carried out by an international nursing student who has been on internship in a hematologic ward and found difficulty during the first and second weeks.

The author considered the risks related to this project as an unforeseen circumstance that may come up in the process of the project implementation stage, which may not naturally be negative but could impact this project and its objectives considerably or adversely. (Project Management, 2022). Risks related to technical issues were handled by regular testing and troubleshooting to prevent guidebook malfunctions. One of the unforeseen circumstances in this case was the absence of the organizations contact person whose feedback was needed on the guidebook.

The difficulties that were encountered in this project were mostly time, health of the author and communication between the organization and the university of applied science. Because of time constraints and privacy, pictures were generated using AI which had some technical difficulties too.

5 THESIS REPORT

5.1 Theoretical description of the methods used in the thesis.

The implementation of this project was carried out on a step-by-step basis, or a strategic process used to attain the author's goal. The project method employed in this thesis was the traditional/waterfall model. The Waterfall Model is a linear and sequential approach to software development and project management. The waterfall model is a classic project management model that consists of successive phases (Petersen et al., 2009). In this method, the project is divided into distinct phases, and progress is seen as flowing steadily downwards (like a waterfall) through these phases. Each phase must be completed before moving on to the next, changes to the project are discouraged once it has entered a new phase, and there will be minimal overlap between phases.

In this project, extensive documentation was created at each phase to capture requirements, design specifications, test plans, and other project artifacts. Changes to requirements or project scope was discouraged once the project had progressed beyond the initial stages and emphasis were laid on thorough planning at the beginning of the project to minimize changes during implementation. (Petersen et al., 2009).

The completion of each phase was marked by well-defined milestones in this project and deliverables, providing a clear sense of progress. Customer involvement was typically higher at the beginning and end of the project, with limited interaction during the development phases. Risks were addressed at the planning stage, and the assumption was that uncertainties could be minimized through comprehensive planning.

5.2 Stages of the project

The project methodology was the waterfall method of project management. These included initiating, planning, executing, implementing, and closing

stages. The name of the method comes from the fact that each phase in the project flows into the next like a waterfall. The individual phases have clear start and endpoints (Sherman, 2015, p.474).

5.2.1 Initiation

In June 2023, the thesis topic was offered to the author in collaboration with a large teaching hospital in the south of Finland. This topic was forwarded to the school for modification and confirmation. After some deliberation with the supervisor, the thesis topic was modified to suit the actual need of the partner hospital. Between August 2023, to November 2023, the author went through a series of assignments, analysing other past thesis topics to be able to better understand how to write a project thesis, a literature review, and a research thesis. This was done in close supervision and discussion with the thesis supervisor, aimed at shaping and improving the authors academic writing skills before kick-starting. At this stage, the author was able to state the purpose and objectives of own thesis, define the key concepts and get familiar with the theoretical background of this thesis.

5.2.2 Planning

In the planning stage carried out between November 2023 and April 2024, the author decided which method was best for this project topic. As earlier stated above, the waterfall method was selected for its coherence.
In this stage the author also chose databases good for the thesis project. Theoretical information was retrieved from Terverysportti, Pubmed, and WebMD. The decision about the purpose, objectives, and methods to be used in the project were also made in this stage. The project plan was written in this phase and presented to the supervisor for corrections in February 2024. A meeting was then held between the author and supervisor discussing how to better modify and tailor the thesis plan to meet the objectives of the guidebook. In early April 2024, an updated copy of the thesis plan was submitted by the

author for review. Some grammar and writing format were corrected with feedback from the supervisor and the thesis plan was accepted one week later.

5.2.3 Execution

Risks, ethical standpoints, literature review, financing, sorting out evidence-based information, and writing a project report, were done in the execution stage. Based on feedback on the thesis plan from the supervising teacher and student supervisor from a large teaching hospital in the south of Helsinki, the final product of this thesis was created which is a digital guidebook, aimed at helping international students to easily navigate the hematologic ward during an internship. This phase was closely monitored by the supervising teacher, who constantly gave feedback and had meetings with the author on how to meet the goals of the project.

5.2.4 Implementation

In the implementation stage, monitoring, guidance, and modifications were done in collaboration with the supervisor. Feedback from some students who had earlier been on internship in a hematologic ward, feedback from the supervising teacher were adapted into the digital guidebook where necessary. The whole process was then described in thesis writing.

5.2.5 Closing

The closing phase then involved finalizing and reviewing all activities of the project (McBride 2016.) The final copy of the digital guidebook was approved by the supervising teacher, which was then forwarded together with an evaluation form from the Satakunta University of Applied Sciences to the student supervisor of a large teaching hospital in the south of Finland.

Table 1: Project schedule

Date	Task
June 2023	Meeting with project partners and Provision of project topic
July to August 2023	Regular feedback collection during the internship.
August to September 2023	Approval of proposed topic and allocation of thesis supervisor
September to November 2023	Gathering information, analysing other past projects in theory, and comparing to the proposed topic, to gain more theoretical understanding as an author.
December 2023 to April 2024	Submitting project plan, pending approval. Approved in April 2024
April 2024	Creating pictures/Manuscripts and writing the guidebook.
May 2024	Presentation of Guidebook for feedback and assessment. Reflection and summarising feedback.

5.3 Literature retrieval

When the author started this project, she realized that much research had not been carried out and/or published on this topic in Finland in English language. The author the used some Finnish websites and textbooks like Terveysportti and Tehohoito written by Finnish authors to realize majority of the theoretical background of this thesis. The librarian was also helpful to the author in finding search words implemented in the literature retrieval process. The author used MOT Kielipalvelu Kaantaja, for the successful translation of material in Finnish language. The search words were Hematological disorders ‘AND’ Nursing

students ‘AND’ Internship, Hematology unit ‘AND’ Clinical education ‘AND’ Nursing internships ‘AND’ Digital guidebooks, Hematology Nursing ‘OR’ Blood Disorders ‘OR’ Hematologic diseases, Digital Guidebook ‘OR’ Digital Learning tools ‘OR’ Educational Resources ‘OR’ Nursing Guidebook. Table 2 shows the search results.

Table 2. Databases and search words

Database	Keywords	Results	Accepted articles/ projects/ research
Ebsco/ CINAHL	Hematological disorders ‘AND’ Nursing students ‘AND’ Internship, Hematology unit ‘AND’ Clinical education ‘AND’ Nursing internships ‘AND’ Digital guidebooks, Hematology Nursing ‘OR’ Blood Disorders ‘OR’ Hematologic diseases,	16	2
CINAHL	Digital Guidebook ‘OR’ Digital Learning tools ‘OR’ Educational Resources ‘OR’ Nursing Guidebook	2513	4
Pubmed	Hematological disorders ‘AND’ Nursing students ‘AND’ Internship, Hematology unit ‘AND’ Clinical education ‘AND’ Nursing internships ‘AND’ Digital guidebooks	224	3
Pubmed	Hematology Nursing ‘OR’ Blood Disorders ‘OR’ Hematologic diseases, Digital Guidebook ‘OR’ Digital Learning tools ‘OR’ Educational Resources ‘OR’ Nursing Guidebook	12986	5

5.4 Description of the Digital guidebook

The digital guidebook of Typical Hematological Disorders for Nursing Students who are having an Internship in a Hematological unit, was created from the beginning with Microsoft word 365. This was because it was easy to adjust, upgrade and fit in feedback from the supervising teacher using Microsoft word 365. Firstly, the guidebook was initiated by putting together some literature about typical hematological disorders that students would easily encounter in a hematologic ward. Brief medical treatment options and the Nurse's role in and guidance for hematology patients was also put together to form the manuscript of the guidebook. After this a meeting was held between the author and supervising teacher to tailor the manuscript and contents of the digital guidebook. This meeting covered all modifications, what needed to be included in the guidebook and what was unnecessary.

The final product was a 22-page digital guidebook which includes a cover page, table of contents, introduction to the hematologic ward, brief description of typical hematologic disorders (Leukemia, Myeloma and Lymphoma), medical treatment options, the nurses' role and guidance for hematologic patients, conclusion, and resources for further learning. The introduction in the guidebook was focused on welcoming students starting internship in a hematologic ward with a brief insight of the contents of the guidebook. The next chapter covered the theoretical background of the thesis, where definitions and important information about typical hematological disorders were briefly described.

After this stage, the author described some medical treatment options for hematologic patients, with emphasis paid on limits of students on internship. The last but one chapter focused on the nurses' role and guidance for hematologic patients. Aspects covered in this section were (Hygiene, Information from the doctor, central venous catheter, chemotherapy, isolation, infections, nutrition, recovery/discharge, and further treatment at home). The author paid attention to clarity and readability of the guidebook.

After the guidebook had been approved by all parties involved, it was then converted by the author from Microsoft Word 365 to PDF and finally to FlipHTML5 software. The final product was a beautiful flipbook in digital format created with FlipHTML5 software. This software made it easy for reading and easy navigation of the guidebook. The use of different fonts for headings and paragraphs, photos created by AI made the digital guidebook captivating and simple. These aspects keep the guidebook interesting and very interactive with its reader. The digital guidebook is also compatible electronically with most electronic devices like computers, mobile phones, tablets, and iPad.

5.5 Evaluation

After the completion of the thesis project, the link to the digital guidebook was sent via email, together with a feedback form from SAMK university to the students' supervisor of a large teaching hospital in the south of Finland. After critically reading and reviewing the guidebook, the supervisor gave excellent feedback, thought the purpose of the thesis were met and was very elated at the way the author set limits on what is safe for students to do in a hematologic ward. Since the supervisor's specialty is not Hematology, she also forwarded the link to the guidebook to the Head nurse of a Hematology ward in a teaching hospital in the south of Finland for more feedback. In the head nurse' words ¨It's absolutely brilliant! ¨, and she had no objection to its contents. She thought the guidebook was very practical, usable, and visually pleasing.

The author also sent a link by email and asked for voluntary feedback from two international students who had been to a hematologic ward before on internship. Feedback questions asked were:

1) Do you find this guidebook helpful?

2) If you had gotten this guidebook before starting your internship, would it have been easier for you,

a) During the first week?

b) during the whole internship period?

3) If you could add, subtract, or correct something in this guidebook, what would you change.

Both students thought the guidebook contained more information that was necessary for the start of internship in a hematologic ward than they had access to. They both thought the guidebook was helpful, easy to understand and implement. Both did not think anything needed to be added to the guidebook except for the fact that the practice ward had new Finnish words that students had never encountered before. But since this was not part of the purpose of the guidebook, new words to expect in a Finnish Hematologic ward were not included in the guidebook.

6 ETHICAL CONSIDERATIONS

While executing all the different phases of this project, the author emphasized and maintained a high standard of integrity concerning the research and presentation of the final guidebook. I based this research integrity standard on the advice of the Finnish National Board on Research Integrity (TENK), which suggests that for any research to be ethically acceptable, reliable, and have credible results, it must be carried out by responsible conduct of research.

The board recommends practices of essential ethical concepts/principles such as honesty, accountability, justice, confidentiality, competence, transparency, and legality as measures for responsible publication. It forewarns that authors avoid research misconduct like falsification, fabrication, plagiarism, and misappropriation. Therefore, complying with these principles, while retrieving information through different research means for use in the implementation of this project. The author was guided by the above-mentioned principles. This goes a long way to ensure integrity and endorse responsible publication at the end of the project (Finnish National Board on Research Integrity TENK, n.d.).

The author obtained a consent agreement from the organisation that needs the project (National Board on Research integrity, 2023), signed by the author, the supervising teachers, the organisation that ordered for this project and the Satakunta University of Applied Science (SAMK) research unit. All through the period of this project writing, the author committed to carrying out a good research practice.

7 DISCUSSION

In assessing the project, the author began with accessing the projects' purpose and defined objectives. This was done by reviewing the methodology, waterfall method and ensuring that it aligned with the authors goals. The waterfall method used in this project was the best project methodology because it gave the author the opportunity to work in a guided step-by-step way. This also helped the author to focus on the stages of the project till approved before moving to the next stage. This method had a limitation of making changes after a phase had been completed, but this helped the author to be more critical and make sure all the needed information in each stage was available and tailored to perfection before moving forward. Changes made in the project plan was also documented by the author.

Frequent meetings were held between the supervising teacher whereby feedback, doubts, modifications, and changes made on the product were addressed.

At the tail end, the author requested feedback from the organization that ordered for a digital guidebook and from two nursing students who had been on internship in a hematologic ward. The project progress went fluently with a few setbacks mostly related to the authors health. The project timeline was met because the supervising teacher was very patient but paid attention to encouraging the author as much as possible. The project and product/digital

guidebook had many revision meetings which aimed at producing a digital guidebook that could cover the requests of the partner organization.

Being a nursing student who has always wanted to do things her way, this project period gave the author a lot of time to reflect on the importance of teamwork. As a student, the author has had to do many tasks and assignments in a team. The author has also had to work as a student nurse and had to solve many practical patient problems with the help of a more experienced nurse. While going through nursing school, the author had not totally understood the grasp of teamwork academically, even though she understands the importance of teamwork in a healthcare environment. This project has come as a transformation to the author because it has not been easy going through it all with just the help of the supervising teacher. Looking at the authors weaknesses and working on them may have been frustrating at some point but came as an important lesson that two heads are better than one.

This project transformed my professional growth, especially relating to research and thesis writing. Feedback gotten from other students has also helped the author to understand how orientation can be extensively important in nursing as a profession. I have always admired the fact that Finland prides itself in Job orientation, no matter how experienced a new employee maybe, and in education, internships and apprenticeship are a norm in Finland. Being a student who has been on internship in a hematologic ward before carrying out this thesis, the author understands how much this guidebook would have been helpful to kickstarting her own internship. Furthermore, creating a digital guidebook helped the author enhance her computer skills, which was a first time try.

Personally, this thesis has positively influenced the authors writing skills, communication skills, and understanding the need for and importance of teamwork. Despite the difficulties faced during this thesis writing, the author has understood the importance of patience and understanding, because the supervising teacher was very gracious and kept on encouraging the author to keep moving steadily.

However, the journey had its own obstacles. Balancing the thesis writing with ongoing class courses, work and family was very challenging and had a negative toll on writing motivation. That notwithstanding, encouragement from the supervising teacher, family/friends support, and encouragement created more room for motivation and a reason to keep pushing. This process also served as an eyeopener to the authors strengths and weaknesses which will serve as a stepping stone in solving future academic challenges.

Overall, this project was an essential experience, stimulating both personal and professional growth. Academic writing skills, English proficiency, literature search, digital literacy, referencing, and communication are some of the skills promoted by this thesis writing. Besides, the author learnt how to balance family, academic and professional responsibilities for future ventures.

8 CONCLUSION

The completion of this guidebook serves as an important resource for international nursing students starting their internships in hematologic units. Through an exhaustive exploration of different blood related diseases, treatment modalities and duties of the nurse in the hematologic ward, this guidebook focuses on bridging the gap between theory and practice.

Internships are an important phase in the development of professional nurses, providing them with action-based experience and an opportunity to apply theoretical knowledge in clinical settings. Hematological units are specialized wards with unique challenges because of the complexity of blood disorders. By equipping students with this guidebook, their self confidence is enhanced thereby boosting their confidence in patient management.

Integrating up-to-date evidence-based practices and advice in this digital guidebook makes sure that international nursing students are oriented towards the latest practices in hematology. This does not only help improve patient outcome but encourages a culture of continuous professional growth and learning amongst future nurses.

In conclusion, this digital guidebook is more than an orientation material; It is a step at empowering nursing students to become efficient and empathetic caregivers in the field of hematology.

REFERENCES

Ahonen, O., Blek-Vehkaluoto, M., Ekola, S., Partamies, S., Sulosaari, V. & Uski-Tallqvist, T. 2012. Kliininen hoitotyö. Helsinki: Sanoma Pro Oy.

Currie, J., Thompson, C. J., Grootemaat, P., Andersen, P., Finnegan, A., Carter, M., & Halcomb, E. (2022). A scoping review of clinical skill development of preregistration registered nurses in Australia and five other English-speaking countries. Journal of Clinical Nursing, 32(1–2), 283–297. https://doi.org/10.1111/jocn.16239

Finnish National Board on Research and Integrity. (2021, February 8). Advice and Materials. Referred 13.02.2022 https://tenk.fi/en/advice-andmaterials/RCR-Guidelines-2012

Gunawan J, Aungsuroch Y, Fisher ML, McDaniel AM, Marzilli C. Perceived Managerial Competence of First-Line Nurse Managers: A Comparative Analysis Among Public Hospitals. Policy Polit Nurs Pract. 2020 Aug;21(3):151-163. https://pubmed.ncbi.nlm.nih.gov/32423305/

HINZE, F. (2017).last update, Who needs what? - Target groups and their needs. Available: Referred 29.01.2022. http://www.social-impactnavigator.org/planning-impact/needs/targetgroups/

Isolation rooms or areas. (2014). https://www.ncbi.nlm.nih.gov/books/NBK214341/

Jantunen, E. 2010. Akuutit Leukemiat. Teoksessa Vilpo, J. (toim.) Ilmari Palvan veritaudit. 3. uud. p. Helsinki: Medivil Oy, 143–147.

Kredo, Tamara, Susanne Bernhardsson, Shingai Machingaidze, Taryn Young, Quinette Louw, Eleanor Ochodo, and Karen Grimmer.(2016) ¨University of South Australia, City East Campus, P4-18 North Ter-Race, Adelaide 5000. https://doi.org/10.1093/intqhc/mzv115.

Leukemia: ALL vs. AML. (n.d.). Retrieved April 24, 2024, from https://www.webmd.com/cancer/lymphoma/leukemia-all-vs-aml

McBride, M. (2016.) Project management basics how to manage your project with checklists. Berkeley, CA: Apress. Referred 26.01.2022. https://samk.finna.fi/Record/samk.991415046805968

Merriam-Webster. (2022). Guidebook. In Merriam-Webster.com dictionary. Referred 17.09.2022. https://www.merriamwebster.com/dictionary/guidebook

Nucci, M., & Anaissie, E. J. Prevention of Infections in Patients with Hematological Malignancies. *Neoplastic Diseases of the Blood*, 1047-1062. https://link.springer.com/content/pdf/10.1007/978-3-319-64263-5_49.pdf

Petersen, K., Wohlin, C., & Baca, D. (2009). The Waterfall Model in Large-Scale Development. Lecture Notes In Business Information Processing, 386-400. https://doi.org/10.1007/978-3-642-02152-7_29

Project management (2022). Referred 9.2.2022 https://projectmanagement.com/types-of-risk-in-project-management/

Salminen, L., Stolt, M., Saarikoski, M., Suikkala, A., Vaartio, H., & Leino-Kilpi, H. (2010). Future challenges for nursing education – A European perspective. Nurse Education Today, 30(3), 233–238. https://doi.org/10.1016/j.nedt.2009.11.004

Salonen, J. (2014a), (2014d). Imusolmukesyöpä (lymfooma). Terveyskirjasto. Duodecim. Viitattu 27.3.2015. http://www.terveyskirjasto.fi/terveyskirjasto/tk.koti?p_artikkeli=dlk00023

Sherman, R. (2015). Project Management. Business Intelligence Guidebook, 449-492. https://doi.org/10.1016/b978-0-12-411461-6.00018-6

APPENDIX 1: AI PHOTOS

AI Prompts:

1) Create an image of an international student being welcomed to the ward by a supervisor with smiles.

Photo: Quinnette Ambo 25.4. 2024 by perchance.org

2) Create a picture of a hematologic patient receiving chemotherapy with a nurse sitting by his bedside. Patient has lost his hair to treatment.

Photo: Quinnette Ambo 30.4. 2024 by perchance.org

3) Create an image of a Hematologic patient in remission with rays of sunshine from the window and a smile on his face.

Photo: Ebile Quinnette Ambo 29.4. 2024 by openart.ai

4) Create an image of a nurse cleaning surfaces in a bedside ward to promote aseptic.

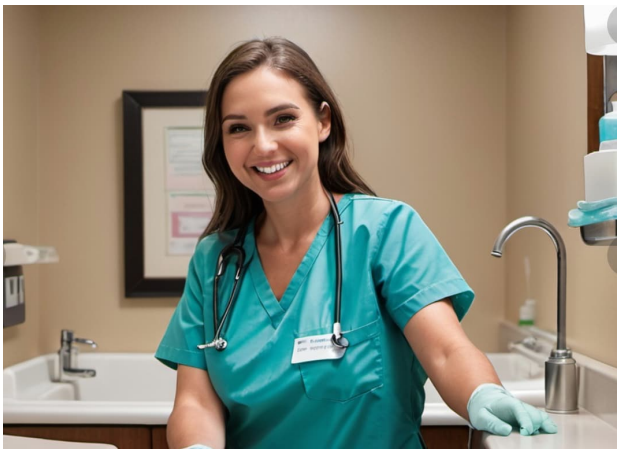

Photo: Quinnette Ambo 29.4. 2024 by openart.ai

5) Create an image of an aseptic table prepared by a nurse before bone marrow biopsy in the ward.

Photo: Ebile Quinnette Ambo 30.4. 2024 by perchance.org

6) Create an image of a nurse in green scrubs washing and disinfecting hands in the sink.

Photo: Quinnette Ambo 30.4. 2024 by openart.ai

7) Create an image of nursing students holding and smiling at a sample guidebook.

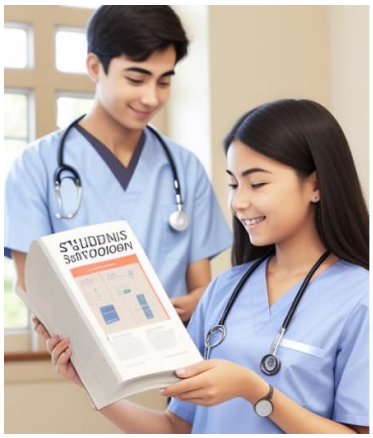

Photo: Ebile Quinnette Ambo 30.4. 2024 by perchance.org