Professional Master's Degree

Pediatric Hematology Nursing

tech technological university

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Professional Master's Degree

Pediatric Hematology Nursing

Course Modality: **Online**
Duration: **12 months**
Certificate: **TECH Technological University**
Official Nº of hours: **1,500 h.**
Website: **www.techtitute.com/in/nursing/professional-master-degree/master-pediatric-hematology-nursing**

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01

Introduction

A pediatric nurse is responsible for providing medical care to infants, children and adolescents up to 18 years of age. By applying all the knowledge they have acquired, they can provide personalized care. In a hematology department, they must have the experience required to handle different situations, optimizing the quality and care of children. In this vein, it is important that professionals have a comprehensive view of the care needed and the appropriate training. The program will provide them with all the essential skills they must develop in order to recognize and assess the physical, psychological, social and spiritual needs of their patients.

Recognize the psychological, social and physical needs of your patients with hematological pathologies by complying with a program endorsed by experts"

Scientific advances in recent years have improved the chances of children with hematological pathologies receiving more appropriate treatments. These advances are continuous and require constant specialization and updating of nursing professionals working in neonatology, emergency, hematology and pediatric ICU units, in order to offer quality and personalized care to children and families who require specific, advanced and complex care.

Nursing care of the pediatric patient with hematologic pathology is a challenge for the patients and their family. On the one hand, because of the significance of the disease itself, its evolution, the intensive and specific treatment it requires, its side effects and the emotional and social repercussions it entails for them. The nursing professionals who care for these patients and their families are aware of the need to continue their academic studies in order to obtain a specific level of competence that will allow them to broaden their clinical care in response to the care needs of their patients and their families.

The Professional Master's Degree in Pediatric Hematology Nursing is unique in many aspects, since it addresses specific issues related to the treatment and care of children and adolescents with hematologic diseases, as well as providing support to the families that go through these diseases together with the children. In this way, students will achieve the knowledge and skills that will allow them to develop the personal and professional attitudes to face this type of situations in their work environments.

The teaching team is of recognized prestige and has extensive experience in international reference units in the treatment and care of newborns, children and adolescents with hematologic malignancies. This Professional Master's Degree will provide the scientific-technical knowledge and comprehensive care, so that students acquire the skills they require in order to care for children with hematologic pathology and their families, taking into account the physical, psychological, emotional, social and spiritual dimensions.

A 100% online Professional Master's Degree that provides the student with the ease of being able to study it comfortably, wherever and whenever they want. All you need is a device with internet access to take your career one step further. A modality in keeping with the current times with all the guarantees to position the nurse in a highly demanded sector.

This **Professional Master's Degree in Pediatric Hematology Nursing** contains the most complete and up-to-date scientific program on the market. The most important features include:

- Practical case studies presented by experts in Pediatric Hematology
- The graphic, schematic, and practical contents with which they are created, provide scientific and practical information on the disciplines that are essential for professional practice
- Practical exercises where the self-assessment process can be carried out to improve learning
- Its special emphasis on innovative methodologies
- Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments
- Content that is accessible from any fixed or portable device with an Internet connection

Stand out in your work environment by developing professional and personal skills to care for children with hematologic pathologies"

Learn about the different bleeding disorders in newborns by following the practical examples presented by experts in Pediatric Hematology"

You can access the program whenever and wherever you want thanks to its 100% online mode, which will allow you to continue with your daily work.

Rely on the help of experts in the field of Pediatric Hematology to review in depth the composition of the blood and the pathologies that can develop in children.

The program's teaching staff includes professionals from the sector who contribute their work experience to this program, as well as renowned specialists from leading societies and prestigious universities.

The multimedia content, developed with the latest educational technology, will provide the professional with situated and contextual learning, i.e., a simulated environment that will provide immersive training programmed to train in real situations.

This program is designed around Problem-Based Learning, whereby the professional must try to solve the different professional practice situations that arise throughout the program. For this purpose, the student will be assisted by an innovative interactive video system created by renowned and experienced experts.

02

Objectives

The knowledge acquired in this Professional Master's Degree allows students to acquire the necessary skills to acquire up-to-date knowledge in their profession, understanding at all times the psychological, physical and spiritual needs of pediatric patients. In this way, you will be able to perform in any international professional environment. Developing full capabilities in a field of medicine that continues to constantly advance, having the opportunity to learn about all hematological disorders that develop from conception to adolescence. TECH establishes a series of general and specific objectives for greater satisfaction of the future graduates, being the following.

Develop a comprehensive approach to the care of pediatric patients with hematological disorders to promote their well-being and autonomy"

General Objectives

- Optimize the quality and care of pediatric patients with hematologic disorders, providing greater qualification to healthcare professionals
- Acquire the essential skills to comprehensively care for children and adolescents with hematologic disorders and their families
- Recognize and assess the physical, psychological, social and spiritual needs of children and adolescents with hematologic disorder and their families
- Achieve sufficient knowledge and skills to be able to develop the personal and professional attitudes required to treat children and adolescents with hematologic disorder
- Develop a comprehensive approach to the care of children and adolescents with hematologic disorders and their families, in order to promote their well-being, autonomy and dignity at all times
- Develop problem-solving and evidence generation capabilities in the field of Pediatric Hematology to correct knowledge deficiencies and establish standards of excellence in practice

Acquire the essential skills to provide comprehensive care to children and adolescents requiring palliative care and their families"

Specific Objectives

Module 1. Principles of Neonatal and Pediatric Hematology

- Cover the biological principles of fetal and postnatal hematopoiesis
- Get to know the main characteristics of the healthy newborn, child and adolescent
- Review in detail the composition of the blood, both the formed elements and the blood plasma
- Identify the characteristics of the different blood groups
- Review the general concepts, functions, organs and cells of the immune system
- Gain knowledge about the fundamentals of hemostasis, its control mechanisms and the laboratory tests necessary for its study
- Introduce the different hematologic diseases in the newborn, child and adolescent

Module 2. Non-Malignant Hematologic Disorder in Newborns

- Get to know the hematologic reference values in the newborn
- Acquire knowledge on fundamental aspects of etiopathogenesis, diagnosis, treatment and complications of non-physiological neonatal jaundice and hemolytic disease of the newborn
- Gain knowledge about the definition, classification, epidemiology, pathophysiology, clinical manifestations, diagnosis and treatment of anemia of prematurity (AOP)
- Differentiate other anemias in newborns and infants, their causes and characteristics, as well as their diagnosis and different treatments
- Learn about the different hemorrhagic disorders in the newborn, their clinical manifestations, etiology, diagnosis and treatment.
- Acquire knowledge on fundamental aspects of etiopathogenesis, clinical, diagnosis, treatment and prognosis of polycythemia in the newborn

- Differentiate the different types of thrombocytopenias in the newborn according to their etiology and type, as well as their clinical manifestations, diagnosis and treatment
- Conduct a presentation of the pathophysiological basis, types and risk factors and etiology of neonatal shock
- Recognize the clinical manifestations and diagnosis of neonatal shock and the necessary actions for its treatment

Module 3. Specificities of Care in Newborns with Non-Malignant Hematologic Disorders

- Get to know the developmental and Family-Centered Care Model (NIDCAP), the synactive theory and the neurodevelopment on which it is based and main aspects
- Develop the most important aspects for the application of the NIDCAP Model
- Identify the indispensable and necessary aspects in the adaptation of the Neonatology Unit to the NIDCAP Model
- Learn and assess the importance of feeding and nutrition in newborns
- Acquire knowledge on fundamental aspects of diagnostic and follow-up procedures in the newborn
- Update knowledge that allows the student to distinguish the different types of vascular accesses in the newborn and get to know the management and care of each one of them
- Describe and update the most common treatment modalities to treat hematologic problems in the newborn
- Review the most frequent procedures, techniques and care in the administration of drugs and serum therapy in the newborn
- Acquire the knowledge necessary for specific nursing care in the treatment of the infant with non-physiological neonatal jaundice
- Get to know and acquire competence to carry out the administration and care of specific hemotherapy support in newborns

Module 4. Non-Malignant Hematologic Disorder in Children

- Gain knowledge about the general concepts, physiopathology, classification, prevalence and incidence, and signs and symptoms of the different types of anemias that can affect children and adolescents
- Acquire knowledge on fundamental aspects of pathophysiology, clinical and treatment of hemoglobinopathies in pediatrics
- Differentiate the different types of coagulation and hemostasis disorders in pediatrics, as well as their etiology, clinic and treatment
- Acquire knowledge on fundamental aspects of epidemiology, clinical features, diagnosis and treatment of non-malignant granulocyte diseases in pediatrics
- Differentiate the different types of primary immunodeficiencies (PIDs) in pediatrics, as well as their clinical manifestations, diagnosis and treatment
- Gain knowledge about the general concepts and classification of congenital medullary insufficiencies (CMI)
- Explain Fanconi's Anemia in detail, differentiate it from the syndrome and study its characteristics, diagnosis, treatment and prognosis
- Review the factors that predispose to infections in children with hematologic disorders, how to prevent them and detail the most frequent ones

Module 5. Pediatric Malignant Hematologic Disorders

- Situate epidemiologically the incidence and survival of hematologic cancer in childhood and adolescence
- Get to know the pathophysiology of hematologic cancer in childhood and adolescence
- Acquire knowledge about the most common childhood cancer, intermediate or standard risk B-cell ALL in pediatrics, its clinical manifestations, treatment and diagnosis
- Acquire knowledge on fundamental aspects of etiopathogenesis, clinical, diagnosis and treatment of high-risk B-ALL and T-ALL in pediatrics

- Differentiate infant-specific leukemia, its chromosomal alterations, clinical features, therapeutic approaches and survival
- Get to know the most relevant aspects and classification of childhood acute myeloid leukemias
- Describe the morphology, translocations, characteristic coagulopathy, treatment and controls of acute promyelocytic leukemia (APL) in pediatrics
- Gain knowledge about the clinical course and treatment of other leukemias: chronic myelogenous leukemia (CML) and juvenile myelomonocytic leukemia (JMML) and myelodysplastic syndromes in children and adolescents
- Acquire knowledge of the clinical, diagnostic and staging, treatment and prognosis of lymphomas in infancy and childhood
- Get to know the most relevant aspects and classification of malignant histiocytosis in pediatrics

Module 6. Pharmacological Treatment and Nursing Care of Children and Adolescents with Severe Hematologic Disorder

- Update knowledge that will allow the student to distinguish the different types of vascular accesses in pediatric hematology and to know the management and care of each one of them
- Describe and update on the general principles of drug administration in pediatrics
- Analyze the different specific treatment modalities to treat hematological pathologies in childhood and adolescence
- Get to know and acquire competence to carry out the administration and care of hemotherapy support in children and adolescents

Module 7. Nursing Care of the Child/Adolescent with Severe Hematologic Disease and Their Family

- Recognize and implement accompaniment as an essential part of the comprehensive care process
- Recognize the vulnerability of patients and their families and be aware of the ethical principles governing their care
- Update the necessary knowledge in the nursing care of pediatric patients, in order to increase the quality and safety of nursing practice in the Pediatric Hematology unit
- Acquire the knowledge and skills necessary to be able to develop the personal and professional attitudes required to care for children and adolescents with severe hematologic disease and their families at the onset of the disease
- Analyze the importance of active nursing observation for the detection of possible physical and/or emotional complications in the care of children and adolescents with severe hematologic disease and their families
- Establish the importance of comprehensive and continuous assessment of the needs of the child and family and identify the most frequent nursing diagnoses during the course of the disease
- Update knowledge in the control and management of symptoms in pediatric patients with hematologic disease
- Explain the importance of nutrition and skin care during the treatment of pediatric patients with oncohematological disease
- Update research knowledge in the care of children and adolescents with severe hematologic disease and their families

Module 8. All Together as a Team

- Provide the student with the knowledge and skills necessary for the recognition, management and initial stabilization of pediatric hematological patients who suffer a vital compromise derived from a complication of their underlying disease, an intercurrent process or undesired consequences of their treatment, in an effective, safe and coordinated manner, and integrating their interventions with the rest of the health system services at the hospital level
- Expose the most frequent emergency situations in children and adolescents with severe hematologic disease
- Explain the most frequent situations in which children and adolescents with severe hematologic disease require intensive care
- Achieve sufficient knowledge and skills to be able to develop the personal and professional attitudes necessary to care for children and adolescents with severe hematologic disease and their families during their stay in a PICU
- Detail and justify the importance of humanizing PICUs to promote the well-being, autonomy and dignity of children, adolescents and families at all times
- Broaden knowledge of the psychological care needs of children and adolescents with severe hematological disease and their families
- Discuss the importance of educational continuity for children and adolescents with severe hematologic disease
- Emphasize the importance of non-profit associations and volunteers in the comprehensive care of children with severe hematological disease and their families
- Describe the different digital teaching resources (ICT-E-health) that we can use and recommend to children and adolescents with severe hematologic disease and their families
- Learn about new technologies applied to care management and nursing visibility

Module 9. Towards Healing: Allogeneic Hematopoietic Stem Cell Transplantation (HSCT) in Pediatrics

- Identify pediatric patients with hematologic disorders who are candidates for allogeneic hematopoietic stem cell transplantation (allo-HSCT)
- Explain the different phases from the donation of hematopoietic progenitors to the infusion of these progenitors to the patient
- Achieve sufficient knowledge and skills to be able to develop the personal and professional attitudes necessary to welcome children and adolescents and their families who are going to undergo allo-HSCT
- Acquire the essential skills to comprehensively care for children and adolescents and their families during conditioning for allo-HSCT
- Gain knowledge and acquire competence to carry out the process of hematopoietic progenitor infusion, as well as to address and manage possible complications during this process
- Understand and develop competence in the approach and management of short, medium and long term complications in the hematopoietic stem cell transplanted patient
- Update knowledge in the treatment of acute graft-versus-host disease (GVHD) in post hematopoietic stem cell transplant patients
- Explain the most frequent emergency situations in children and adolescents transplanted with hematopoietic progenitors
- Describe the mid- and long-term nursing care of children and adolescents after hematopoietic stem cell transplantation
- Increase knowledge of the psychological care needs of children and adolescents undergoing allo-HSCT and their families

Module 10. When the Response to Treatment is Not Adequate

- Describe the concept of relapse, treatment options and the reception and accompaniment of children, adolescents and parents
- Identify the scientific and ethical basis of clinical trials in pediatric hematology
- Introduce the biologic-molecular basis of immunotherapy treatment
- Get to know the types and different phases of clinical trials in pediatric hematology
- Explain the practical aspects of conducting a clinical trial in pediatric hematology
- Identify the professionals involved and the role of nursing in clinical trials in pediatric hematology
- Describe the nursing care of the pediatric patient with hematologic disease included in a clinical trial
- Discuss expectations in the management of the pediatric patient with severe hematologic disease
- Conceptualize pediatric palliative care
- Acquire the essential skills to provide comprehensive care to children and adolescents in need of palliative care and their families
- Recognize the needs of pediatric patients in need of palliative care
- Gain knowledge abot the fundamental aspects of symptom control in palliative care in pediatric hematology
- Carry out a comprehensive care plan for children with incurable diseases and their families
- Examine the ethical issues applicable to child health and their use in making difficult decisions in palliative care situations
- Discuss what is an appropriate end of life in symptom management and accompaniment, to promote and ensure well-being and dignity at all times

Module 11. Welcome, Care and Accompaniment in Pediatric Hematology

- Develop within nursing professionals the set of knowledge and skills for the comprehensive approach and management of children and adolescents with severe hematologic disorder and their families
- Identify the theoretical foundations of nursing that approach the comprehensive view of care
- Describe the facilitating role and emotional competency profile of pediatric hematology nurses
- Understand the importance of therapeutic communication in the care of children and adolescents with severe hematologic disorders and their families
- Identify the influence of the environment and surroundings on the experience of the disease
- Acquire skills in the accompaniment of the family system in pediatric hematology
- Achieve sufficient knowledge and skills to be able to develop the personal and professional attitudes necessary to care for children and adolescents with severe hematologic disorders and their families in the different stages of development

03

Skills

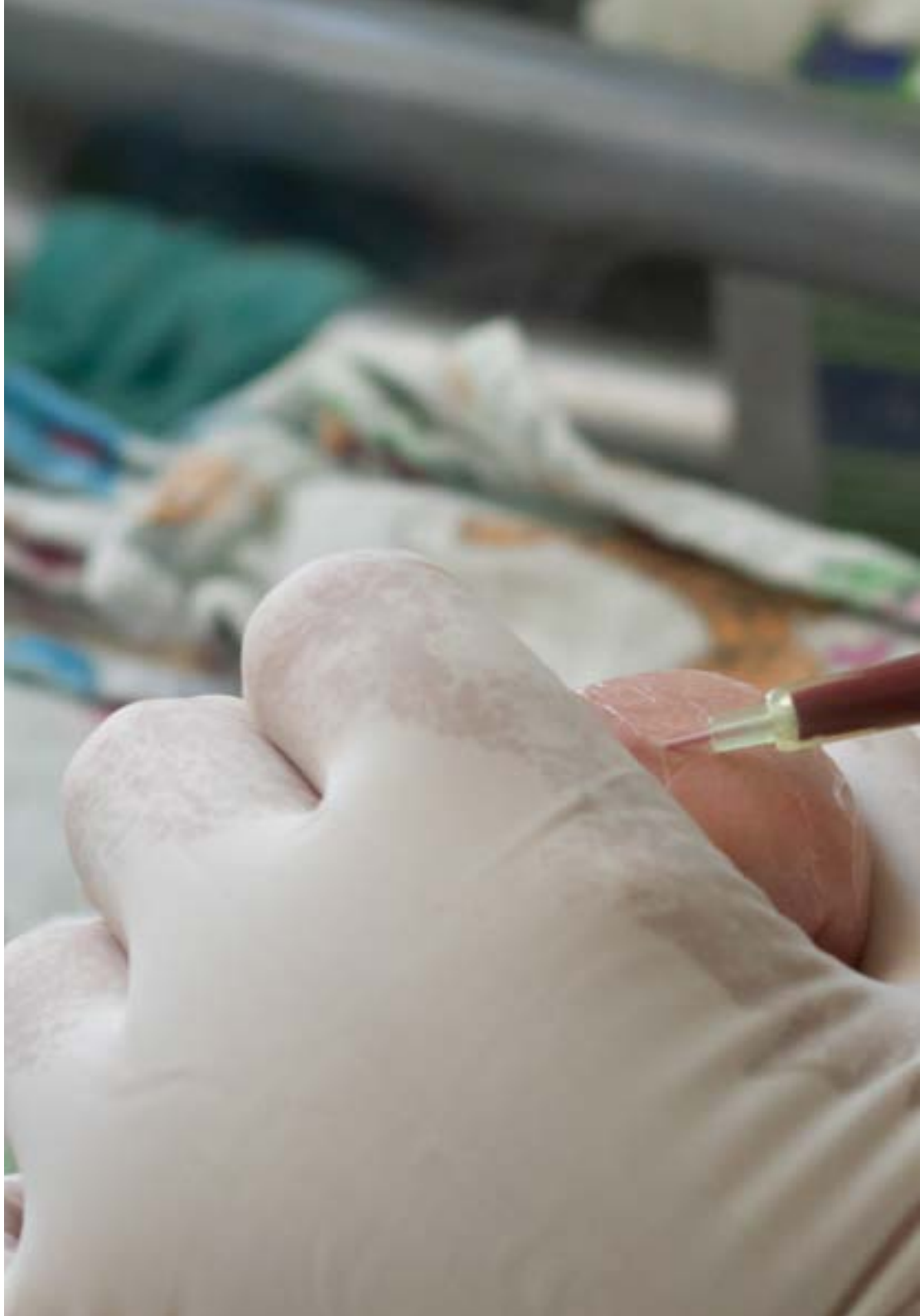
The structure of this Professional Master's Degree has been developed to allow students to move from theoretical knowledge to action, building schemes that allow them to execute their knowledge in the best way. In this way, following a unique methodology and the support of experts in the field, the future graduate will be able to work in a holistic, tolerant, caring and sensitive manner to ensure the rights and wishes of pediatric patients. As a result, you will be able to perform the various functions related to this program. In addition, the most innovative proposals in this field of action are available.

Acquires the necessary competencies to ensure holistic and humane care for pediatric patients with hematologic diseases"

General Skills

- Master the essential skills to comprehensively care for children and adolescents with hematological pathologies and their families
- Apply the knowledge acquired in quality and pediatric patient care
- Be able to recognize and assess the physical, psychological, social and spiritual needs of the pediatric patient
- Develop sufficient skills to enable professionals to provide better medical care to their pediatric patients with hematologic disorders
- Be able to maintain a comprehensive vision of care for children and adolescents with hematologic disorders and their families, promoting their well-being and autonomy at all times
- Get to know how to approach any work situation and generate evidence to correct knowledge deficiencies and improve standards of excellence in practice

Improving your professional skills will allow you to comprehensively and contextually assess pediatric patients with severe hematologic disorder, detecting any anomalies and possible deficits in their needs"



Specific Skills

- Work in a holistic, tolerant, non-judgmental, caring and sensitive manner, ensuring that the rights, beliefs and wishes of newborns, children and adolescents with hematologic disease and their families are not compromised, allowing them to express their concerns and interests, and that they are able to respond appropriately
- Manage nursing care aimed at satisfying the needs derived from the health problems of the newborn, child or adolescent with severe hematologic disorders and the prevention of complications, guaranteeing a safe and quality practice
- Assess the impact of hospitalization and disease processes involving a loss or change of life of the newborn, child and adolescent with severe hematologic disorder and their family, establishing a therapeutic relationship that facilitates their adaptation to the unit, adequate coping and favors progressive involvement in care
- Assess, in a comprehensive and contextualized manner, the newborn, child and adolescent with severe hematologic disorder and their family, detecting any anomalies and possible deficits in their needs, making professional clinical judgments, planning interventions and autonomously solving the problems identified and/or referring to another professional, ensuring a shared and coordinated action
- Effectively and efficiently perform the different procedures, diagnostic tests and treatments derived from the different health problems in the newborn, child

and adolescent, taking into account the different levels of care and ensuring a professional practice based on ethical, legal and clinical safety principles.

- Provide comprehensive care to the newborn, child or adolescent with severe hematologic disorder and their family from an ethical and legal perspective, with respect, tolerance, without judgment, with sensitivity to cultural diversity, guaranteeing the right to privacy, confidentiality, information, participation, autonomy and informed consent in decision-making
- Consider emotional, physical and personal care, including meeting the needs for comfort, nutrition and personal hygiene and enabling the maintenance of daily activities
- Manage nursing care of the newborn, child and adolescent with a hematologic process in an autonomous manner, allowing an adequate adaptation, experience and coping with the disease, its long evolutionary process, the intensive and specific therapy required, its side effects and the psycho-emotional and social repercussions for the child, adolescent and their family
- Educate, facilitate, support and encourage the well-being and comfort of newborns, children and adolescents with hematologic disease and their families
- Apply different health education strategies to the child or adolescent with severe hematologic disorder, in an autonomous manner, identifying learning needs, designing, planning and carrying out interventions to promote, foster and maintain the autonomy of the child and adolescent with hematologic disease and their family, to prevent risks and achieve the highest level of self-care possible
- Assess the newborn, child and adolescent with hematologic disease and their family and social environment, identifying their degree of dependence, the care they require, the resources and social support available, as well as the health services necessary to meet their needs

- Manage nursing care aimed at meeting the needs of the newborn with severe hematologic disease and their family, and the complications arising from a health problem requiring care in the emergency and neonatal intensive care units (NICU) taking into account the standards of quality and clinical safety and the NIDCAP Model
- Manage nursing care aimed at meeting the needs of the child and adolescent with severe hematologic disease and their family, and the complications arising from a health problem requiring care in the Pediatric Emergency and Intensive Care Units (PICU), taking into account the standards of quality and clinical safety
- Develop the ability to anticipate and act in situations that may endanger the life of the newborn, child and adolescent in critical condition, in a complex environment with constantly up-to-date diagnostic and therapeutic technology
- Provide the necessary emotional support in the face of the impact produced by the severity of the disease, admission to the ER, NICU or PICU, in order to reduce emotional stress, facilitate effective coping with the situation and favor adaptation to the unit or the experience of grief
- Maintain an effective communication with the team, with other professionals, institutions, and social groups, using available resources, facilitating the exchange of information and contributing to an improvement in the care provided in a climate of collaboration and to realize that the patient's well-being is achieved from the combination of resources and actions of the team members
- Assess risk and actively promote the well-being and safety of all people in the work environment
- Base their clinical practice on the best available evidence to contribute to continuous improvement in the quality of care provided to the newborn, child and adolescent with severe hematologic disease and their families

04

Course Management

In order to provide a quality education, it is necessary to have a teaching staff that can provide all the theoretical and practical information that will help students to develop optimally in any work environment. In this way, TECH relies on a large team specialized in pediatric hematology, which will provide students with the best tools to develop their skills in the clinical practice of this profession As a result, the student will be able to put theoretical knowledge into practice with the support of the experience of the teaching team that composes this Professional Master's Degree.

Develop your skills to manage the care required by pediatric patients under the supervision of an excellent teaching faculty with years of experience in the field"

Management

Ms. Coronado Robles, Raquel

- Specialist Nurse in Pediatric Nursing
- Pediatric hematology/oncology unit, Vall d'Hebron Hospital, Barcelona
- Associate Professor and coordinator of the Childhood Mention of the Nursing Degree at the Autonomous University of Barcelona (UAB)

Professors

Ms. Ariño Ariño, Ingrid

- Neonatology Unit Vall d'Hebron Barcelona Hospital Campus

Ms. Bonfill Ralló, Marina

- Psycho-oncologist Pediatric hematology/oncology unit, Vall d'Hebron Barcelona Hospital Campus

Ms. Bustelo Almeida

- Psycho-oncologist Pediatric hematology/oncology unit, Vall d'Hebron Barcelona Hospital Campus

Ms. Congil Ortega, Jordana

- Neonatology Unit Vall d'Hebron Barcelona Hospital Campus

Ms. Cuevas González, Cristina

- Specialist Nurse in Pediatric Nursing. Vall d'Hebron Barcelona Hospital Campus

Mr. Díaz Martín, Gonzalo

- Specialist Nurse in Pediatric Nursing. Vall d'Hebron Barcelona Hospital Campus

Ms. Fernández Angulo, Verónica

- Day Hospital Pediatric hematology/oncology unit, Vall d'Hebron Hospital, Barcelona

Ms. Hladun Álvaro, Raquel

- Medical specialist and head of Clinical Trials at the Pediatric hematology/oncology unit, Vall d'Hebron Barcelona Hospital Campus

Ms. Martínez González

- Pediatric hematology/oncology unit, Vall d'Hebron Barcelona Hospital Campus

Ms. Muñoz Blanco, Mª José

- Supervisor of the pediatric intensive care unit (PICU). Vall d'Hebron Barcelona Hospital Campus

Ms. Nogales Torres, Elena

- Pediatric hematology/oncology unit, Vall d'Hebron Barcelona Hospital Campus

Mr. Ortegón Delgadillo, Ramiro

- Pediatric hematology/oncology unit, Vall d'Hebron Barcelona Hospital Campus
  Co-director of SEER (Emotional Health and Education).

Ms. Pérez Cainzos, Laura

- Pediatric Unit Vall d'Hebron Barcelona Hospital Campus

Ms. Pérez Correa, Sónia

- Pediatric hematology/oncology unit, Vall d'Hebron Barcelona Hospital Campus

Ms. Ridao Manonellas, Saida

- Specialist Nurse in Pediatric Nursing. Immunodeficiency nursing consultation

Ms. Rodríguez Gil, Raquel

- Specialist Nurse in Pediatric Nursing. Neonatology unit supervisor
  Vall d'Hebron Barcelona Hospital Campus

Ms. Saló Rovira, Anna

- Psycho-oncologist of the Pediatric hematology/oncology unit, Vall d'Hebron Barcelona Hospital Campus

Mr. Toro Guzmán, Antonio

- Pediatric hematology/oncology unit, Vall d'Hebron Hospital, Barcelona. Associate Professor of the Degree in Nursing at the Autonomous University of Barcelona (UAB)

Ms. Vidal Laliena, Miriam

- Cell biology, immunology and neuroscience at IDIBAPS-UB. Clinical Data Manager-study coordinator Pediatric hematology/oncology unit Vall d'Hebron Barcelona Hospital Campus (2016-2017). Currently: at CatSalut. Catalan Health Service

05

Structure and Content

To ensure that students meet the requirements of nursing applied to pediatric patients with hematologic conditions, a syllabus has been developed whose modules offer a broad perspective of this field of action, from a holistic, tolerant, sensitive point of view and focused on ensuring the rights, beliefs and wishes of their patients. From module 1, students will see their knowledge broadened, which will enable them to develop professionally, knowing that they can count on the support of a team of experts.

Manage nursing care aimed at meeting patients' needs by preventing complications and ensuring safe practice"

Module 1. Principles of Neonatal and Pediatric Hematology

1.1. Fetal Hematopoiesis
- 1.1.1. Introduction to Prenatal Hematopoiesis
- 1.1.2. Mesoblastic or Megaloblastic Hematopoiesis
- 1.1.3. Hepatic Phase
- 1.1.4. Splenic Phase
- 1.1.5. Medullary or Myeloid Phase

1.2. Healthy Newborn
- 1.2.1. Fetal Development
- 1.2.2. Changes at Birth
- 1.2.3. First Month of Life

1.3. Postnatal Hematopoiesis
- 1.3.1. General Concepts of Postnatal Hematopoiesis
- 1.3.2. Types of Hematopoietic Tissue
  - 1.3.2.1. Myeloid Tissue
  - 1.3.2.2. Lymphoid Tissue
- 1.3.3. Regulation of Hematopoiesis. Stimulation and Inhibition
- 1.3.4. Erythropoiesis
  - 1.3.4.1. Hemoglobin Synthesis
  - 1.3.4.2. Hemoglobin Disorders
- 1.3.5. Granulocytopoiesis
- 1.3.6. Monocytopoiesis
- 1.3.7. Platelet Formation

1.4. Composition of the Blood: Formed Elements
- 1.4.1. Introduction to Blood Cells and Blood Plasma
- 1.4.2. Blood Functions
- 1.4.3. Blood Components
  - 1.4.3.1. Plasma
  - 1.4.3.2. Formal Elements
    - 1.4.3.2.1. Red Blood Cells or Erythrocytes
    - 1.4.3.2.2. Leukocytes
      - 1.4.3.2.2.1. Granular (Neutrophils, Eosinophils, Basophils)
      - 1.4.3.2.2.2. Non-Granular (Lymphocytes, Monocytes)

1.5. Blood Composition: Blood Plasma
- 1.5.1. Blood Plasma Composition
  - 1.5.1.1. Plasma Proteins
    - 1.5.1.1.1. Albumins
    - 1.5.1.1.2. Globulins
    - 1.5.1.1.3. Fibrinogen
    - 1.5.1.1.4. Others
- 1.5.2. Plasma Functions
- 1.5.3. Differences Between Plasma and Serum

1.6. Blood Groups
- 1.6.1. Introduction
- 1.6.2. A-B-O Antigen Group -A-B
  - 1.6.2.1. A and B Antigens: Agglutinogens
  - 1.6.2.2. Genetic Determination of Agglutinogens
  - 1.6.2.3. Agglutinin
  - 1.6.2.4. Agglutination Process in Transfusion Reactions
  - 1.6.2.5. Blood Typing
- 1.6.3. Rh Blood Type
  - 1.6.3.1. Rh Antigens
  - 1.6.3.2. Rh Immune Response
  - 1.6.3.3. Erythroblastosis Fetalis ("Hemolytic Disease of the Newborn")

1.7. Immune System
- 1.7.1. General Concepts of Immunology
- 1.7.2. Immune System Functions
- 1.7.3. Immune System Organs
  - 1.7.3.1. Skin and Mucous Membranes
  - 1.7.3.2. Thymus
  - 1.7.3.3. Liver and Bone Marrow
  - 1.7.3.4. Bladder
  - 1.7.3.5. Lymph Nodes
- 1.7.4. The Innate or Non-Specific System
- 1.7.5. The Adaptive or Specific System

1.7.6. Humoral Elements in the Immune Response
1.7.6.1. T Lymphocytes
1.7.6.2. Natural Killer Cells (NK)
1.7.6.3. Antigen-Presenting Cells (HLA Antigen, Macrophages, Dendritic Cells, B Lymphocytes)
1.7.6.4. Polymorphonuclear Cells: Neutrophils, Basophils and Eosinophils
1.8. Fundamentals of Hemostasis
1.8.1. Introduction
1.8.2. Primary Hemostasis
1.8.2.1. Vessels, Endothelium and Platelets
1.8.2.2. Physiology
1.8.2.2.1. Initiation (Platelet Adhesion)
1.8.2.2.2. Extension (Platelet Activation)
1.8.2.2.3. Perpetuation (Platelet Aggregation and Procoagulant Activity)
1.8.3. Secondary Hemostasis or Coagulation
1.8.3.1. Coagulation Factors
1.8.3.2. Physiology
1.8.3.2.1. Extrinsic Pathway
1.8.3.2.2. Intrinsic Pathway
1.8.4. Control Mechanisms of the Coagulation Process
1.8.5. Clot Removal and Fibrinolysis
1.8.6. Laboratory Tests
1.8.6.1. To Assess Primary Hemostasis
1.8.6.2. To Assess Coagulation
1.9. Healthy Children
1.9.1. Infant: 1-24 months
1.9.2. Pre-School Stage
1.9.3. School Stage
1.10. Adolescent Stage
1.11. Introduction to Hematologic Diseases in Pediatrics
1.11.1. Introduction
1.11.2. Non-Malignant Hematologic Diseases
1.11.2.1. In the Newborn
1.11.2.1.1. Specificities
1.11.2.1.2. Most Frequent Hematologic Disorders
1.11.2.1.2.1. Non-Physiologic Neonatal Jaundice
1.11.2.1.2.2. Anemia of Prematurity
1.11.2.1.2.3. Other Types of Anemia in Newborns
1.11.2.1.2.4. Hemorrhagic Disorders
1.11.2.1.2.5. Polycythemia
1.11.2.1.2.6. Neonatal Shock
1.11.2.2. In the Child
1.11.2.2.1. Specificities
1.11.2.2.2. Most Common Pathologies
1.11.2.2.2.1. Anemia in Pediatrics
1.11.2.2.2.2. Hemoglobinopathies
1.11.2.2.2.3. Alterations of Coagulation and Hemostasis
1.11.2.2.2.4. Non-Malignant Granulocyte Diseases
1.11.2.2.2.5. Primary Immunodeficiencies
1.11.2.2.2.6. Congenital Spinal Cord Insufficiencies
1.11.2.2.2.7. Most Frequent Infections
1.11.3. Malignant Hematologic Diseases
1.11.3.1. Leukemias
1.11.3.2. Lymphomas
1.11.3.2.1. Hodgkin's Lymphoma
1.11.3.2.2. Non-Hodgkin's Lymphoma

Module 2. Non-Malignant Hematologic Disorder in the Newborn

2.1. Hematologic Reference Values in the Newborn
- 2.1.1. Introduction
- 2.1.2. Blood Count Reference Values in the Term Newborn
  - 2.1.2.1. Red Blood Cell Reference Values in the Term Newborn
  - 2.1.2.2. White Cell Reference Values in the Term Newborn
- 2.1.3. Biochemistry Reference Values in the Term Newborn
- 2.1.4. Hemostasis Reference Values in the Term Newborn
- 2.1.5. Blood Gas Analysis Reference Values in the Term Newborn
  - 2.1.5.1. Blood Gases at Birth
  - 2.1.5.2. Blood Gas at 24 Hours of Life

2.2. Non-Physiologic Neonatal Jaundice and Hemolytic Disease of the Newborn
- 2.2.1. Introduction
- 2.2.2. Basic Pathogenic Concepts
- 2.2.3. Etiopathogenesis
  - 2.2.3.1. Physiologic Jaundice
  - 2.2.3.2. Non-Physiologic Jaundice
  - 2.2.3.3. Jaundice due to Rh Factor Incompatibility
    - 2.2.3.3.1. Hemolytic Disease of the Newborn
- 2.2.4. Clinical Complications
  - 2.2.4.1. Acute Bilirubin Encephalopathy
  - 2.2.4.2. Chronic Encephalopathy or Kernicterus
- 2.2.5. Diagnosis of the Newborn with Jaundice
  - 2.2.5.1. Medical History
  - 2.2.5.2. Physical Exploration
  - 2.2.5.3. Laboratory Tests
- 2.2.6. Treatment
  - 2.2.6.1. Phototherapy
  - 2.2.6.2. Exchange Transfusion
  - 2.2.6.3. Pharmacotherapy

2.3. Preterm Anemia
- 2.3.1. Definition of Anemia of Prematurity (AOP)
  - 2.3.1.1. Anemia Considerations in the Preterm Newborn (PTNB)
  - 2.3.1.2. Features of a PTNB
  - 2.3.1.3. Hematologic Features of a PTNB
- 2.3.2. Classification of Anemia by Weeks of Gestation and Corrected Weeks of Gestation
- 2.3.3. Epidemiology of Anemia in the PTNB
- 2.3.4. Pathophysiology and Most Common Causes of Anemia in Preterm Newborn
  - 2.3.4.1. Anemia Related to Decreased Erythrocyte Production
  - 2.3.4.2. Anemia Related to Increased Erythrocyte Destruction
  - 2.3.4.3. Anemia Related to Total Blood Volume Loss
- 2.3.5. Clinical Symptoms
  - 2.3.5.1. General Aspects
  - 2.3.5.2. Related to the Cause
  - 2.3.5.3. Gestational Age-Related
- 2.3.6. Diagnosis
  - 2.3.6.1. Prenatal Diagnosis. Is it Possible?
  - 2.3.6.2. Differential Diagnosis
  - 2.3.6.3. Complementary Tests
    - 2.3.6.3.1. General Aspects
    - 2.3.6.3.2. How to Perform a Hemogram Correctly in a PTNB?
- 2.3.7. Treatment
  - 2.3.7.1. Blood Transfusion Treatment
  - 2.3.7.2. Other Treatments of the Cause
    - 2.3.7.2.1. Erythropoietin Administration
    - 2.3.7.2.2. Autotransfusions
- 2.3.8. Evolution and Prognosis of Anemia in the PTNB

2.4. Other Types of Anemia in Newborns and Infants
- 2.4.1. Difference Between Physiologic and Non-Physiologic Anemia
- 2.4.2. Most Important Pathophysiological Differences between PTNB and Term Newborns (TNB)

2.4.3. Causes of Anemia in Newborns and Infants
2.4.3.1. Hemorrhagic
2.4.3.2. Hemolytic
2.4.3.3. Hypoplastic
2.4.4. Characteristics of Hypoplastic Anemias
2.4.4.1. Physiological Hypoplastic Anemia
2.4.4.2. Congenital Hypoplastic Anemia
2.4.4.2.1. Diamond-Blackfan
2.4.4.2.2. Fanconi's Anemia
2.4.4.2.3. Dyserythropoietic
2.4.4.2.4. Idiopathic Aplasia
2.4.4.2.5. Estren-Dameshek
2.4.4.3. Secondary Aplastic Anemia
2.4.4.3.1. Congenital Leukemia
2.4.4.3.2. Infections
2.4.4.3.3. Post-Transfusion Anemia
2.4.4.3.4. Others
2.4.5. Secondary Aplastic Anemia
2.4.6. Differential Diagnosis and Complementary Tests
2.4.7. Transfusion Treatments and Criteria According to Age (TNB/Infant)
2.4.8. Other Treatments: Exchange Transfusion
2.4.9. Considerations of Treatments. New Treatments
2.5. Hemorrhagic Disorders in the Newborn
2.5.1. Introduction
2.5.2. Clinical Symptoms
2.5.3. Etiology of Hemorrhagic Disorders in the Newborn
2.5.3.1. Acquired Causes
2.5.3.1.1. Vitamin K Deficiency
2.5.3.1.2. Disseminated Intravascular Coagulation (DIC)
2.5.3.1.3. Hepatopathy or Liver Disease
2.5.3.1.4. Extracorporeal Membrane Oxygenation (ECMO)
2.5.3.1.5. Others: α2 Antiplasmin Deficiency, Vascular Problems, Obstetric Trauma, Platelet Qualitative Disorders, Acquired Immune and Non-immune Thrombopenias
2.5.3.2. Hereditary Causes
2.5.3.2.1. Congenital Deficiency of Clotting Factors: Hemophilia, von Willebrand's Disease
2.5.4. Diagnosis of the Newborn with Hemorrhage
2.5.4.1. Medical History
2.5.4.2. Physical Exploration
2.5.4.3. Laboratory Tests
2.5.5. Treatment of Hemorrhage in the Newborn
2.6. Polycythemia in the Newborn
2.6.1. Introduction
2.6.2. Etiopathogenesis
2.6.2.1. Blood Transfusion (Hypervolemia)
2.6.2.2. Increased Erythropoiesis (Normovolemia)
2.6.2.3. Hemoconcentration due to Volume Depletion
2.6.2.4. Others: Physiological, Beckwith-Wiedemann Syndrome
2.6.3. Clinical Symptoms
2.6.3.1. Neurological Manifestations
2.6.3.2. Hematological Manifestations
2.6.3.3. Cardiac Manifestations
2.6.3.4. Respiratory Manifestations
2.6.3.5. Gastrointestinal Manifestations
2.6.3.6. Renal and Genitourinary Manifestations
2.6.3.7. Dermatological Manifestations
2.6.3.8. Metabolic Manifestations
2.6.4. Diagnosis
2.6.5. Treatment of Polycythemia in the Newborn
2.6.5.1. General Measures
2.6.5.2. Partial Exchange Transfusion
2.6.6. Prognosis
2.7. Thrombocytopenia in the Newborn
2.7.1. Introduction
2.7.2. Clinical symptoms

2.7.3. Etiology
2.7.3.1. Acquired Thrombocytopenias
2.7.3.1.1. Diseases: Hepatopathies, Intraventricular Hemorrhage
2.7.3.1.2. Severe Jaundice
2.7.3.2. Hereditary Thrombocytopenias
2.7.3.2.1. Autosomal Recessive: Glanzmann Thrombasthenia, Bernard-Soulier Syndrome
2.7.3.2.2. Autosomal Dominant: Platelet-Type von Willebrand's Disease, Quebec Platelet Syndrome
2.7.4. Classification According to the Type of Thrombocytopenia
2.7.4.1. Immune Neonatal Thrombocytopenia: Alloimmune or Autoimmune
2.7.4.2. Infectious Neonatal Thrombocytopenia
2.7.4.3. Neonatal Thrombocytopenia of Genetic Origin
2.7.4.4. Various Causes
2.7.5. Diagnosis of the Newborn with Hemorrhage
2.7.5.1. Medical History
2.7.5.2. Physical Exploration
2.7.5.3. Laboratory Tests
2.7.6. Treatment of Thrombocytopenia in the Newborn
2.8. Neonatal Shock
2.8.1. Introduction
2.8.1.1. Pathophysiological Bases
2.8.1.2. Types of Shock
2.8.1.3. Risk Factors Associated with Neonatal Shock
2.8.2. Etiology of Neonatal Shock
2.8.3. Clinical Symptoms of Neonatal Shock
2.8.4. Diagnosis of Neonatal Shock
2.8.4.1. Medical History
2.8.4.2. Physical Exploration
2.8.4.3. Complementary Tests
2.8.5. Treatment of Neonatal Shock

Module 3. Specificities of Care in Neonates with Non-Malignant Hematologic Disorders

3.1. Developmental and Family-Centered Care Model NIDCAP
3.1.1. Introduction to the Model
3.1.2. Synactive Theory
3.1.3. Newborn Neurodevelopment and Behaviors
3.1.4. The Family as Primary Caregiver
3.1.5. Teamwork
3.2. Application of NIDCAP in the Newborn
3.2.1. Positioning and Manipulation
3.2.2. Babysitting Method
3.2.3. Painful Procedures
3.2.4. Inclusion of the Family in Care
3.3. Adaptation of the Neonatal Unit According to the NIDCAP Model
3.3.1. Lighting and Acoustic Control
3.3.2. Doors Open 24-hour
3.3.3. Grouping of Procedures and Manipulations
3.3.4. Sibling Project
3.3.5. Joint Hospitalization
3.3.6. "With You Like at Home"
3.4. The Importance of Feeding and Nutrition in the Newborn
3.4.1. Feeding of the Newborn with Non-Malignant Hematologic Disorder
3.4.2. Breastfeeding
3.4.3. Maternal Milk Bank
3.4.4. Artificial Breastfeeding
3.5. Diagnostic and Monitoring Procedures in the Newborn
3.5.1. Anamnesis and Detailed Examination
3.5.2. Blood Group and Coombs Test
3.5.3. Blood Analysis
3.5.4. Transcutaneous Bilirubin
3.5.5. Food Control and Elimination
3.5.6. Other Procedures

3.6. Venous Access in the Newborn
- 3.6.1. Umbilical Venous Catheter (UVC)
- 3.6.2. Epicutaneo-Cava Catheter
- 3.6.3. Broviac Type Tunneled Central Venous Catheter
- 3.6.4. Central Femoral and Jugular Venous Lines
- 3.6.5. Peripherally Inserted Central Venous Catheter (PICC)
- 3.6.6. Peripheral Venous Route

3.7. Most Frequent Treatments in the Newborn with Hematologic Disorder
- 3.7.1. Hemorrhagic Disease Prophylaxis
- 3.7.2. Phototherapy
- 3.7.3. Intravenous Immunoglobulins
- 3.7.4. Serum Albumin
- 3.7.5. Exchange Transfusion
- 3.7.6. Complementary Treatments
- 3.7.7 Metalloporphyrins

3.8. Specific Nursing Care in the Management of the Infant with Non-Physiologic Neonatal Jaundice
- 3.8.1. Theoretical Framework
  - 3.8.1.1. Nursing Care Based on the Model of Virginia Henderson
- 3.8.2. Nursing Care of Newborns with Non-Physiologic Neonatal Jaundice
  - 3.8.2.1. Nursing Care Related to Phototherapy
  - 3.8.2.2. Nursing Care Related to Exchange Transfusion
  - 3.8.2.3. Nursing Care Related to Pharmacological Treatment
- 3.8.3. Phases of the Nursing Process
  - 3.8.3.1. Evaluation
  - 3.8.3.2. Detection of Problems Diagnosis
  - 3.8.3.3. NOC Planning
  - 3.8.3.4. NIC Execution
  - 3.8.3.5. Assessment

Module 4. Non-Malignant Hematologic Disorder in Children

4.1. Anemia in Pediatrics (I)
- 4.1.1. Introduction. Concepts
- 4.1.2. General Pathophysiology of Anemia in Pediatrics
- 4.1.3. Classification of Anemia
  - 4.1.3.1. Morphological
  - 4.1.3.2. Pathophysiological
  - 4.1.3.3. By Establishment
- 4.1.4. Prevalence and Incidence of Anemia in Pediatrics
- 4.1.5. General Signs and Symptoms
- 4.1.6. Differential Diagnosis According to Type of Anemia
- 4.1.7. Iron Deficiency Anemia

4.2. Anemia in Pediatrics (II)
- 4.2.1. Microcytic Anemia
  - 4.2.1.1. Iron Deficiency
  - 4.2.1.2. Thalassemia
  - 4.2.1.3. Chronic Inflammatory Disease
  - 4.2.1.4. Others
    - 4.2.1.4.1. Copper Deficiency Anemia
    - 4.2.1.4.2. Anemia due to Intoxication
    - 4.2.1.4.3. Others
- 4.2.2. Normocytic Anemia
  - 4.2.2.1. Definition and Possible Causes
    - 4.2.2.1.1. Bone Marrow Aplasia/Hypoplasia
    - 4.2.2.1.2. Hemophagocytic Syndrome
- 4.2.3. Macrocytic Anemia
  - 4.2.3.1. Vitamin B12 Deficiency Anemia
  - 4.2.3.2. Folate Deficiency Anemia
  - 4.2.3.3. Lesch-Nyhan Syndrome
  - 4.2.3.4. Bone Marrow Failure
- 4.2.4. Hemolytic Disorders
  - 4.2.4.1. Hemoglobinopathies
  - 4.2.4.2. Enzymopathies
  - 4.2.4.3. Immune Hemolytic Anemia
  - 4.2.4.4. Extrinsic Factors
    - 4.2.4.4.1. Wilson's Disease
    - 4.2.4.4.2. Hemolytic Uremic Syndrome
    - 4.2.4.4.3. Thrombotic Thrombocytopenic Purpura
    - 4.2.4.4.4. Disseminated Intravascular Coagulation

4.3. Hemoglobinopathies: Sickle Cell Disease and Thalassemias
- 4.3.1. Quantitative Hemoglobinopathies: Thalassemias
  - 4.3.1.1. Definition
  - 4.3.1.2. Pathophysiology
  - 4.3.1.3. Clinical Symptoms of Thalassemia Major or Cooley's Anemia
  - 4.3.1.4. Treatment
    - 4.3.1.4.1. Hypertransfusion and Iron Chelators
    - 4.3.1.4.2. Allogeneic HSCT
- 4.3.2. Qualitative Hemoglobinopathies: Sickle Cell Disease
  - 4.3.2.1. Definition
  - 4.3.2.2. Clinical Symptoms
    - 4.3.2.2.1. Hemolytic Anemia, Vasculopathy and Chronic Organ Damage
    - 4.3.2.2.2. Vaso-Occlusive Crises
    - 4.3.2.2.3. Infections
    - 4.3.2.2.4. Others
  - 4.3.2.3. Treatment
    - 4.3.2.3.1. From Pain
    - 4.3.2.3.2. Urgent
    - 4.3.2.3.3. Surgical Intervention
    - 4.3.2.3.4. Allogeneic HSCT

4.4. Alterations of Coagulation and Hemostasis in Pediatrics
- 4.4.1. Thrombocytopenia
  - 4.4.1.1. Concept
  - 4.4.1.2. Primary Immune Thrombocytopenia (ITP)
    - 4.4.1.2.1. Definition
    - 4.4.1.2.2. Etiology
    - 4.4.1.2.3. Clinical Symptoms
    - 4.4.1.2.4. Treatment
      - 4.4.1.2.4.1. Intravenous Corticosteroids and Immunoglobulins
      - 4.4.1.2.4.2. IgG anti-D, Chrysotherapy
      - 4.4.1.2.4.3. Splenectomy, Thrombopoietin Receptor Agonists, Rituximab
      - 4.4.1.2.4.4. According to Acute or Chronic
- 4.4.2. Hemophilia A and B
  - 4.4.2.1. Etiology
  - 4.4.2.2. Clinical Symptoms
  - 4.4.2.3. Treatment
    - 4.4.2.3.1. Inactivated or Recombinant Plasma Concentrate
    - 4.4.2.3.2. Desmopressin
    - 4.4.2.3.3. Vaccination and Sport Specificities
- 4.4.3. Von Willebrand Disease (VWD)
  - 4.4.3.1. Definition
  - 4.4.3.2. Etiology
  - 4.4.3.3. Clinical Symptoms
  - 4.4.3.4. Treatment

4.5. Non-Malignant Granulocyte Diseases
- 4.5.1. Neutropenia
  - 4.5.1.1. Classification
  - 4.5.1.2. Severe Congenital Neutropenia
    - 4.5.1.2.1. Signs and Symptoms
    - 4.5.1.2.2. Epidemiology
    - 4.5.1.2.3. Diagnosis
    - 4.5.1.2.4. Treatment
    - 4.5.1.2.5. Complications
- 4.5.2. Congenital Defects of Phagocyte Function
  - 4.5.2.1. Clinical Characteristics
  - 4.5.2.2. Prevalence
  - 4.5.2.3. Genetic Diagnosis and Advice
  - 4.5.2.4. Treatment

4.6. Primary Immunodeficiencies
- 4.6.1. Introduction to Primary Immunodeficiencies (PID)
- 4.6.2. PID Clinic
- 4.6.3. Diagnosis of PID
- 4.6.4. Types of PID
- 4.6.5. PID Treatment

4.7. Congenital Medullary Insufficiencies (CMI)
- 4.7.1. Concept
- 4.7.2. Classification
  - 4.7.2.1. Global Medullary Insufficiencies
    - 4.7.2.1.1. Definition
    - 4.7.2.1.2. Fanconi's Anemia
    - 4.7.2.1.3. Shwachman-Diamond Syndrome
      - 4.7.2.1.3.1. Introduction
      - 4.7.2.1.3.2. Clinical symptoms
      - 4.7.2.1.3.3. Treatment
  - 4.7.2.2. Isolated Medullary Insufficiencies
    - 4.7.2.2.1. Blackfan-Diamond Anemia
      - 4.7.2.2.1.1. Definition
      - 4.7.2.2.1.2. Clinical Symptoms
      - 4.7.2.2.1.3. Treatment

4.8. Congenital Medullary Insufficiencies: Fanconi's Anemia
- 4.8.1. Definition
- 4.8.2. Differentiation Between Fanconi's Anemia and Fanconi's Syndrome
- 4.8.3. Characteristics of Fanconi's Anemia

4.8.4. Diagnosis
4.8.4.1. Diagnostic Suspicion
4.8.4.1.1. For Sibling Diagnosed with Fanconi's Anemia
4.8.4.1.2 Due to the Appearance of Aplastic Anemia or Bone Marrow Failure
4.8.4.1.3. For the Appearance of Myelodysplasia or Leukemia
4.8.4.2. Tests
4.8.4.2.1. Prenatal Diagnosis
4.8.4.2.2. Ultrasound
4.8.4.2.3. Flow Cytometry Analysis
4.8.4.2.4. Blood Count
4.8.4.2.5. Bone Marrow Aspirate (BMA) and Bone Marrow Biopsy
4.8.4.2.6. Others
4.8.5. Treatment
4.8.5.1. Support
4.8.5.1.1. Androgen Derivatives
4.8.5.1.2. Growth Factors
4.8.5.1.3. Blood Transfusions
4.8.5.2. Curative
4.8.5.2.1. Allogeneic Hematopoietic Progenitor Transplantation
4.8.5.2.2. Gene Therapy
4.8.6. Prognosis
4.9. Most Frequent Infections in Pediatric Patient with Hematologic Disorder
4.9.1. Infection Predisposing Factors
4.9.2. Infection Prevention
4.9.3. Most Frequent Infections
4.9.3.1. Febrile Neutropenia
4.9.3.2. Bacteremia
4.9.3.3. Sepsis and Septic Shock
4.9.3.4. Respiratory Infections
4.9.3.5. Digestive Infections
4.9.3.6. CNS Infections
4.9.3.7. Infections by Multi-Resistant Organisms
4.9.3.8. Viral Infections

Module 5. Malignant Hematologic Disorder in Pediatrics

5.1. Epidemiology and Pathophysiology of Hematologic Cancer in Pediatrics
5.1.1. Epidemiology of Hematologic Cancer in Pediatrics
5.1.1.1. General aspects
5.1.1.2. Acute Lymphoblastic Leukemia
5.1.1.3. Hodgkin's Lymphomas
5.1.1.4. Non-Hodgkin's Lymphomas
5.1.2. Pathophysiology of Cancer in Pediatrics
5.1.2.1. Unlimited Replication Potential
5.1.2.2. Clonal Expansion
5.1.2.3. Aberrant Differentiation
5.1.2.4. Avoidance of Apoptosis
5.2. Standard or Intermediate-risk B-Cell Acute Lymphoblastic Leukemia (B-ALL) in Pediatrics
5.2.1. Introduction
5.2.2. Clinical Symptoms
5.2.3. Diagnosis
5.2.4. Treatment
5.3. High-Risk B-ALL and T-ALL in Pediatrics
5.3.1. High Risk B-ALL
5.3.1.1. Introduction
5.3.1.2. Clinical Symptoms
5.3.1.3. Diagnosis
5.3.1.4. Treatment
5.3.2. T-ALL
5.3.2.1. Introduction
5.3.2.2. Clinical Symptoms
5.3.2.3. Diagnosis
5.3.2.4. Treatment

5.4. Leukemia in Infants (Infantile Leukemia)
- 5.4.1. Introduction
- 5.4.2. Chromosomal Alterations
- 5.4.3. Clinical Characteristics
- 5.4.5. Therapeutic Approaches
- 5.4.6. Survival

5.5. Acute Myeloid Leukemia Infantile
- 5.5.1. Acute Myeloid Leukemia in Pediatrics
  - 5.5.1.1. Association to Syndromes
  - 5.5.1.2. Stratification by Risk Groups
- 5.5.2. Acute Promyelocytic Leukemia in Pediatrics (ALL or AML L3)
  - 5.5.2.1. Morphology
  - 5.5.2.2. Translocations
  - 5.5.2.3. Characteristic Coagulopathy
  - 5.5.2.4. Treatment
  - 5.5.2.5. Controls

5.6. Others Leukemias and Myelodysplastic Syndromes in Pediatrics
- 5.6.1. Chronic Myeloid Leukemia
  - 5.6.1.1. Clinical Symptoms
  - 5.6.1.2. Treatment
- 5.6.2. Juvenile Myelomonocytic Leukemia (JMML)
  - 5.6.2.1. Definition
  - 5.6.2.2. Clinical Symptoms
  - 5.6.2.3. Treatment
  - 5.6.2.4. New Therapies
  - 5.6.2.5. Myelodysplastic Syndromes

5.7. Hodgkin's Lymphoma in Pediatrics
- 5.7.1. Introduction
- 5.7.2. Clinical Symptoms
- 5.7.3. Diagnosis and Staging
- 5.7.4. Treatment
- 5.7.5. Prognosis

5.8. Non-Hodgkin's Lymphoma in Pediatrics
- 5.8.1. Introduction
- 5.8.2. Classification
- 5.8.3. Clinical Symptoms
- 5.8.4. Diagnosis and Staging
- 5.8.5. Treatment

5.9. Burkitt Lymphoma
- 5.9.1. Specific Characteristics
- 5.9.2. Presentation
- 5.9.3. Clinical Symptoms
- 5.9.4. Diagnosis
- 5.9.5. Treatment

5.10. Malignant Histiocytosis
- 5.10.1. Langerhans Cell Histiocytosis (LCH)
  - 5.10.1.1. Clinical Symptoms
  - 5.10.1.2. Diagnosis
  - 5.10.1.3. Treatment
- 5.10.2. Hemophagocytic Lymphohistiocytosis
  - 5.10.2.1. Diagnosis
  - 5.10.2.2. Treatment

Module 6. Pharmacological Treatment and Nursing Care of Children with Hematologic Disorder

6.1. Central and Peripheral Venous Catheters. Nursing care
- 6.1.1. Introduction
- 6.1.2. Choice of Catheter
- 6.1.3. Peripheral Venous Accesses
- 6.1.4. Central Venous Accesses

6.2. The Great Ally: Subcutaneous Reservoir. Most Important Aspects of Its Care
- 6.2.1. Introduction
- 6.2.2. Placement Indications
- 6.2.3. Advantages and Disadvantages
- 6.2.4. Implementation
- 6.2.5. Withdrawal

6.3. General Principles of Drug Administration in Pediatrics
- 6.3.1. Safety in the Administration of Drugs in Pediatric Hematology
- 6.3.2. Routes of Administration and Care
- 6.3.3. Recording of Drug Administration
- 6.3.4. Main Drugs to Support Treatment

6.4. Most Relevant Treatments in Patients with Immunodeficiencies
- 6.4.1. General Measures
- 6.4.2. Prophylactic and/or Symptomatic Treatment
- 6.4.3. Replacement Therapy
- 6.4.4. Curative Treatment

6.5. Antineoplastic Treatment (I)
- 6.5.1. Chemotherapy Fundamentals
- 6.5.2. Indications of Chemotherapy
- 6.5.3. Criteria of Response to Treatment
- 6.5.4. Drug Resistance
- 6.5.6. Forms of Chemotherapy Administration
- 6.5.7. Interaction of Chemotherapy with Other Drugs
- 6.5.8. Chemotherapy Regimens
- 6.5.9. Dose Intensity

6.6. Antineoplastic Treatment (II)
- 6.6.1. Most Commonly Used Antineoplastic Agents in Pediatric Hematology
- 6.6.2. Chemoprotective Agents
- 6.6.3. Short- and Medium-Term Side Effects

6.7. Administration of Antineoplastic Drugs. Most Important Care
- 6.7.1. General Measures in the Administration of Cytostatics
- 6.7.2. Risk Prevention in the Administration of Cytostatics
  - 6.7.2.1. Safety Circuit
  - 6.7.2.2. Drug Reception and Storage
  - 6.7.2.3. Dual Validation of Pharmacological and Non-Pharmacological Measures Prior to Drug Infusion
  - 6.7.2.4. Double Validation of the Antineoplastic Drug
  - 6.7.2.5. Personal Protective Equipment (PPE)
  - 6.7.2.6. Drug Corroboration at the Bedside
- 6.7.3. Nursing Care by Route of Administration
  - 6.7.3.1. Nursing Care in Oral Administration
  - 6.7.3.2. Nursing Care in Intramuscular Administration
  - 6.7.3.3. Nursing Care in Intrathecal Administration
  - 6.7.3.4. Nursing Care in Intra-Arterial Administration
- 6.7.4. Nursing Action in the Event of a Cytostatic Spill

6.8. Administration of Antineoplastic Drugs. Most Important Care
- 6.8.1. Agents with Irritant Capacity and Toxicity of Antineoplastic Agents
- 6.8.2. Pre-, During and Post-Administration Care
- 6.8.3. Action in case of Complications

6.9. Hemotherapy Support in Pediatrics. Most Important Care
- 6.9.1. Blood Products
  - 6.9.1.1.1. Whole Blood
  - 6.9.1.2. Red Blood Cell Concentrate
  - 6.9.1.3. Platelet Concentrate
  - 6.9.1.4. Fresh Plasma
- 6.9.2. Irradiation and Washing of Products
- 6.9.3. Transfusion Indications and Dosage

6.9.4. Request
6.9.4.1. Documentation
6.9.4.2. Crossmatch Sample
6.9.5. Administration of Blood Derivatives
6.9.6. Adverse Reactions
6.9.7. Transfusion Safety

Module 7. Nursing Care of the Child/Adolescent with Severe Hematologic Disease and Their Family

7.1. "Careful Care" for the Child/Adolescent and Their Family
7.1.1. Fragility and Vulnerability:
7.1.1.1. Of the People We Care For
7.1.1.2. Of Nursing Professionals
7.1.2. Sympathy, Empathy and Compassion:
7.1.2.1. For the People We Care For
7.1.2.2. For Nursing Professionals
7.1.3. Bioethics and Pediatrics
7.1.3.1. Paternalism in Pediatrics
7.1.3.2. The Problem of Autonomy in Minors
7.1.3.3. Assent and Informed Consent in Minors
7.1.3.4. Autonomy in Adolescence and the Mature Child
7.1.3.5. Legal Capacity of the Minor
7.1.3.6. Parental Access to Medical Records
7.1.3.7. Care Ethics Committee (CEA)
7.1.3.8. Nursing as an Ethical Guarantee
7.2. Safety as a Priority in Pediatric Hematology
7.2.1. Why and What for?
7.2.2. Professionals Involved
7.2.3. Safety Priorities
7.2.4. Care Based on Scientific Evidence
7.2.5. Safety in the Pediatric Hematology Unit

7.3. Child/Adolescent and Family Reception at the Onset of Severe Hematologic Disease
- 7.3.1. The Onset of the Child and Adolescent with Severe Hematologic Disease
- 7.3.2. Care in the Pediatric Emergencies Unit
- 7.3.3. Care in the Hospitalization Unit

7.4. Observation and Active Nursing Listening in Pediatric Hematology
- 7.4.1. Differences Between Seeing, Looking and Observing
- 7.4.2. Objectives of Active Observation
- 7.4.3. Moments of Observation in Pediatric Hematology
  - 7.4.3.1. Observation of the Child
  - 7.4.3.2. Observation of the Family
- 7.4.4. Obstacles and Difficulties

7.5. Nursing Assessment and Diagnosis in Pediatric Hematology
- 7.5.1. Basis of Nursing Assessment
  - 7.5.1.1. Process, Planned, Systematic, Continuous, Deliberate
  - 7.5.1.2. Assessment Objectives
  - 7.5.1.3. Types of Assessment According to Objectives
  - 7.5.1.4. Overall Assessment
  - 7.5.1.5. Focused Assessment
- 7.5.2. Stages of the Process of Nursing Assessment
  - 7.5.2.1. Obtaining Results
  - 7.5.2.2. Assessment of Information
  - 7.5.2.3. Standardized Assessment in Pediatric Hematology
- 7.5.3. Detection of Problems in Pediatric Hematology
- 7.5.4. Interdependent Problems in Pediatric Hematology
- 7.5.5. Most frequent Nursing Diagnoses in Pediatric Hematology According to the Situation

7.6. Nursing Care in Symptom Control in Pediatric Hematology
- 7.6.1. General Principles of Symptom Control
- 7.6.2. Assessment of Symptoms
- 7.6.3. Variable Emotional Attitude
- 7.6.4. Irritability
- 7.6.5. Physical Pain
- 7.6.6. Myelosuppression Derivatives
- 7.6.7. Anorexia
- 7.6.8. Nausea and Vomiting
- 7.6.9. Digestive
- 7.6.10. Alopecia
- 7.6.11. Cushing's Syndrome
- 7.6.12. Hemorrhagic Cystitis
- 7.6.13. Pneumonitis
- 7.6.14. Ocular and Other Sensory Organ Disorders
- 7.6.15. Neurological Alterations

7.7. Skin Care in Pediatric Patient with Severe Hematologic Disease
- 7.7.1. Introduction
- 7.7.2. General Skin Care
  - 7.7.2.1. Sun Exposure
  - 7.7.2.2. Clothing
  - 7.7.2.3. Hygiene and Hydration
  - 7.7.2.4. Nails
  - 7.7.2.5. Postural Changes
- 7.7.3. Most Common Alterations. Prevention, Assessment, Treatment
  - 7.7.3.1. Alopecia
  - 7.7.3.2. Hirsutism
  - 7.7.3.3. Exfoliative Dermatitis or Palmo-Plantar Erythrodysesthesia
  - 7.7.3.4. Pruritus
  - 7.7.3.5. Stretch Marks
  - 7.7.3.6. Ulcerations
  - 7.7.3.7. Perianal and Genital Dermatoses
  - 7.7.3.8. Mucositis
  - 7.7.3.9. Related to Therapeutic Devices

7.8. Feeding of Children with Malignant Hematologic Disorder
- 7.8.1. Importance of Nutrition in Childhood
- 7.8.2. Special Needs of the Child with Severe Hematologic Disorder
- 7.8.3. Side Effects of Treatment in Children with Severe Hematologic Disorder
- 7.8.4. Adaptation of Diet in Children with Severe Hematologic Disorder
- 7.8.5. Nutritional Support
- 7.8.6. Adaptation of the Diet in Complications
- 7.8.7. Other Combination Nutritional Therapies
- 7.8.8. Adapted Recipes/Tips to Make Food More Appetising

7.9. Carrying Out Diagnostic Tests. Nursing Care
- 7.9.1. Patient and Family Information
- 7.9.2. Professional Coordination
- 7.9.3. Patient Preparation
- 7.9.4. Care During the Test
- 7.9.5. Patient Reception
- 7.9.6. Specific Care During the Following Hours

7.10. Nursing Consultation of the Pediatric Patient with Non-malignant Hematologic Disease. Specific Care
- 7.10.1. Introduction
- 7.10.2. Diagnostic Support
- 7.10.3. Socio-Family Assessment and Quality of Life
- 7.10.4. Education Preventive Measures
- 7.10.5. Adherence to Treatment
- 7.10.6. Transition to the Adult Unit

7.11. Research in Pediatric Hematology Care
- 7.11.1. Evidence-Based Nursing (EBN)
  - 7.11.1.1. EBN Pillars
  - 7.11.1.2. EBN Phases and Models
  - 7.11.1.3. Formulation of Questions
  - 7.11.1.4. Search for Evidence
  - 7.11.1.5. Critical Reading
  - 7.11.1.6. Implementation and Assessment
- 7.11.2. Research Methodology
- 7.11.3. Innovation in Care
- 7.11.4. Where Are We Heading?

Module 8. All Together as a Team

8.1. Emergency Nursing Care in the Pediatric Patient with Hematologic Disorder
- 8.1.1. Definition of Emergency in Children with Severe Hematologic Disorder
- 8.1.2. Most Common Emergencies in Children with Severe Hematologic Disorder
  - 8.1.2.1. According to Etiology
  - 8.1.2.2. According to Affected Organs
- 8.1.3. Most Frequent Reasons for Admission to the Emergency Department in Children with Severe Hematologic Disorders
- 8.1.4. Performance in the Most Common Emergencies
  - 8.1.4.1. Hyperleukocytosis
  - 8.1.4.2. Febrile Neutropenia
  - 8.1.4.3. Immune Reconstitution Inflammatory Syndrome (IRIS)
  - 8.1.4.4. Cytokine Release Syndrome
  - 8.1.4.5. Severe Pain
  - 8.1.4.6. Acute Methotrexate Toxicity
  - 8.1.4.7. Transfusion Reactions
  - 8.1.4.8. Extravasations
  - 8.1.4.9. Intrathecal Chemotherapy Side Effects
- 8.1.5. Management of Oxygen Therapy, Fluid Therapy, Main Drugs and Electromedical Devices and Administration of Own Drugs.
- 8.1.6. Emergency Response
- 8.1.7. Crash Cart Defibrillator
- 8.1.8. Training of the Assistance Team
- 8.1.9. Communication with the Family and the Child/Adolescent

8.2. Nursing Care of Pediatric Patients with Hematologic Disease and Their Family, Admitted to the PICU (I)
- 8.2.1. Initial Assessment of the Patient in PICU
- 8.2.2. Common Complications Requiring Intensive Care

8.2.2.1. Complications Related to the Underlying Disease and its Treatment
8.2.2.1.1. Respiratory Failure
8.2.2.1.2. Cardiac Disorders
8.2.2.1.3. Hematological System Disorder
8.2.2.1.4. Acute Kidney Failure
8.2.2.1.5. Metabolic Alterations
8.2.2.1.6. Hepatoxicity
8.2.2.2. Complications Related to the Postoperative Period in Neurosurgery
8.2.3. Basic Nursing Care in the Pediatric Patient Admitted to the PICU
8.2.4. Nutritional Aspects of the Patient in PICU
8.2.5. Special Situations in the Oncology Patient
8.2.5.1. Patient Requiring Continuous Renal Replacement Therapy (CRRT)
8.2.5.2. Patient Subjected to High Frequency Mechanical Ventilation (HFMV)
8.3. Nursing Care of Pediatric Patients with Hematologic Disease and Their Family, Admitted to the PICU (II)
8.3.1. Initial Comprehensive Care for the Family of the Hematologic Patient Admitted to the PICU
8.3.2. Psychological Aspects in Children with Hematologic Pathology Requiring Intensive Care
8.3.2.1. Pain Management
8.3.2.2. Treatment Anxiety
8.3.2.3. Fear of Death
8.3.3. Grief in the Oncologic Patient Admitted to the PICU
8.3.4. Special Situations in the Oncologic Patient Admitted to the PICU
8.3.4.1. Communication with the Oncology Patient Subjected to Mechanical Ventilation
8.3.4.2. Rehabilitation (Respiratory and Motor Physiotherapy)
8.3.5. Medical Information and Care Team-Family Unit Communication
8.3.6. End-of-Life Care for Oncology Patients
8.4. Pediatric Intensive Care Unit (PICU). Humanization Projects
8.4.1. General Criteria for Admission of Hematologic Patients to the PICU
8.4.2. Family Repercussions of Admission to the PICU
8.4.3. Humanistic Vision of Critical Care
8.4.4. Care Model: Family-Centered Care
8.4.4.1. Family Empowerment
8.4.4.2. Emotional Well-Being
8.4.5. Characteristics of the Care Team in a Humanistic PICU
8.4.6. Humanizing Strategies in an Open-Door PICU
8.5. Psychological Support of the Child with Severe Hematologic Disorder
8.5.1. Developmental Stage of Childhood
8.5.2. The Child with Severe Hematologic Disease
8.5.2.1. Specific Characteristics
8.5.2.2. Psychological Care for Children and Their Family
8.5.2.2.1. General Aspects
8.5.2.2.2. According to the Stage of the Disease
8.5.3. Survivors of Malignant Hematologic Disease in Childhood and Quality of Life
8.5.4. Death in Childhood
8.5.4.1. Palliative Care
8.5.4.2. Grief
8.6. Psychological Support of the Adolescent During the Process of Living of Severe Hematologic Disease
8.6.1. Adolescent Developmental Stage
8.6.2. The Adolescent with Severe Hematologic Disease
8.6.2.1. Specific Characteristics of the Adolescent with Severe Hematologic Disease
8.6.2.2. Psychological Care in the Phases of the Disease
8.6.2.2.1. Diagnosis
8.6.2.2.2. Treatment
8.6.2.2.3. Post-Treatment
8.6.3. Survivors in Adolescence and Quality of Life
8.6.4. Death in Adolescence
8.7. Foundations and Associations of Parents of Children with Hematologic Disorder and other NGOs
8.7.1. Volunteering in Pediatric Hematology-Oncology Units
8.7.1.1. The Importance and Coordination of Volunteering
8.7.1.2. Lines of Volunteering in Pediatric Oncology
8.7.1.3. Volunteer Training

8.8. Educational Continuity in Children and Adolescents with Hematologic Disorder
- 8.8.1. Educational Care as a Right; Principles of Educational Care for Students with Disease
- 8.8.2. Requirements and Procedures
- 8.8.3. Educational Coverage During the Disease Process
  - 8.8.3.1. In-Hospital. Hospital Classrooms
  - 8.8.3.2. Home-Based Educational Support Service

8.9. Information and Communication Technologies (ICT) and Humanization
- 8.9.1. Use of ICT and eHealth for Parents
  - 8.9.1.1. Decalogue for the Good Use of ICTs
  - 8.9.1.2. ICTs as a Method of Distraction and Relief of Pain and Anxiety in Children and Adolescents
  - 8.9.1.3. ICTs as a Method of Communication and Learning
- 8.9.2. Use of ICT and E-health for Parents
  - 8.9.2.1. Information Needs
  - 8.9.2.2. Communication Needs
  - 8.9.2.3. Development and Prescription of Apps and Websites in Pediatric Oncology
  - 8.9.2.4. Use of Social Networks
- 8.9.3. Use of ICT and E-health for Health Professionals
  - 8.9.3.1. New Technologies and New Challenges for the Nursing Professional
  - 8.9.3.2. Application of New Technologies in Healthcare
  - 8.9.3.3. Useful Applications for Pediatric Hematology Nurses
  - 8.9.3.4. ICT Applications in the Healthcare of the Future

Module 9. Towards Healing: Allogeneic Hematopoietic Stem Cell Transplantation (HSCT) in Pediatrics

9.1. Introduction and Indications for Allogeneic Hematopoietic Progenitor Transplantation
- 9.1.1. Hematopoietic Progenitors Cells (HPCs) and HSCT
- 9.1.2. The Histocompatibility System (HLA or MHC)
- 9.1.3. The History Hematopoietic Progenitor Transplantation
- 9.1.4. Types of Hematopoietic Progenitor Transplantation
  - 9.1.4.1. According to the Donor
  - 9.1.4.2. According to the Source of the Hematopoietic Progenitors
- 9.1.5. Indications for Allogeneic HSCT
  - 9.1.5.1. Patients with Hematologic Malignancies
    - 9.1.5.1.1. Leukemias
    - 9.1.5.1.2. Myelodysplastic Syndromes
    - 9.1.5.1.3. Lymphomas
  - 9.1.5.2. Patients with Non-Malignant Diseases
    - 9.1.5.2.1. Erythrocyte Disorders
    - 9.1.5.2.2. Primary Immunodeficiencies
    - 9.1.5.2.3. Congenital Medullary Insufficiencies
    - 9.1.5.2.4. Others

9.2. From Donor Selection to Infusion of Hematopoietic Progenitors
- 9.2.1. Donor Selection
  - 9.2.1.1. Related Donors
  - 9.2.1.2. Search for Unrelated Donors
  - 9.2.1.3. Choice of Donor
- 9.2.2. HPC Collection Techniques
  - 9.2.2.1. Cord Blood Progenitor Cell Procurement and Management
  - 9.2.2.2. Mobilization and Collection of Peripheral Blood Progenitor Cells
  - 9.2.2.3. Bone Marrow Progenitor Cell Collection by Direct Aspiration
- 9.2.3. Transportation of PHs (From Hospital of Origin to Receiving Hospital)
  - 9.2.3.1. Bag Labeling
  - 9.2.3.2. Container Labeling
  - 9.2.3.3. Documentation
  - 9.2.3.4. Temperature
- 9.2.4. HPC Management and Preservation
  - 9.2.4.1. Quality Control of Cell Processing
  - 9.2.4.2. Handling Prior to Cryopreservation
  - 9.2.4.3. Cryopreservation
  - 9.2.4.4. Defrosting
  - 9.2.4.5. Transport to the Hospital HPT Unit to be Infused

9.3. Nursing During the Conditioning of the Child/Adolescent Undergoing allo-HSCT
- 9.3.1. Patient and Family Reception
- 9.3.2. Patient Assessment
- 9.3.3. Conditioning Regimes
  - 9.3.3.1. Total Body Irradiance (TBI)
  - 9.3.3.2. Chemotherapy
- 9.3.4. Prophylaxis of Graft-Versus-Host Disease (GVHD)
  - 9.3.4.1. Methotrexate
  - 9.3.4.2. Infliximab and Rituximab
  - 9.3.4.3. Cyclosporine
  - 9.3.4.4. Mycophenolate
  - 9.3.4.5. Gene Transfer Agents (GTAs)
  - 9.3.4.6. Cyclophosphamide
  - 9.3.4.7. Corticoids
  - 9.3.4.8. Non-specific Immunoglobulins
- 9.3.5. Prophylaxis of Sinusoidal Obstructive Syndrome (SOS)
- 9.3.6. Infection Prophylaxis
  - 9.3.6.1. Protective Environment (PE) Rooms
  - 9.3.6.2. Low Bacterial Diet
  - 9.3.6.3. Pharmacological Prophylaxis
- 9.3.7. Patient and Family Accompaniment

9.4. Day 0. Infusion of Hematopoietic Progenitors
- 9.4.1. Day 0
- 9.4.2. Patient Preparation
- 9.4.3. Progenitors Reception
- 9.4.4. Infusion of Progenitors
- 9.4.5. Potential Complications
- 9.4.6. Post Infusion Care of Progenitors
  - 9.4.6.1. Care of the Patient
  - 9.4.6.2. Care of the Family

9.5. Phase of Medullary Aplasia. Nursing Care
- 9.5.1. Duration of the Spinal Cord Aplasia Phase
- 9.5.2. Potential Complications of the Spinal Cord Aplasia Phase
  - 9.5.2.1. Directly Derived from the Conditioning Treatment
  - 9.5.2.2. Produced by the Situation of Aplasia
    - 9.5.2.2.1. Infections
    - 9.5.2.2.2. Nausea and Vomiting
    - 9.5.2.2.3. Diarrhea
    - 9.5.2.2.4. Mucositis
    - 9.5.2.2.5. Hemorrhages
    - 9.5.2.2.6. Respiratory Problems
- 9.5.3. Nursing Assessment and Interventions

9.6. Mid-Term Nursing Care of the Transplanted Child/Adolescent and Their Family
- 9.6.1. Duration of the Post-Transplant Phase in the Medium Term
- 9.6.2. Potential Complications of the Post-Transplant Phase in the Medium Term
  - 9.6.2.1. Infections
  - 9.6.2.2. Graft Versus Host Disease
  - 9.6.2.3. Implant and Pre-Implant Syndrome
  - 9.6.2.4. Implant/Graft Failure
  - 9.6.2.5. Other Complications
    - 9.6.2.5.1. Hemorrhagic Cystitis
    - 9.6.2.5.2. Renal Dysfunction
    - 9.6.2.5.3. Thrombotic Microangiopathy
    - 9.6.2.5.4. Idiopathic Pneumonia Syndrome (IPS)
    - 9.6.2.5.5. Diffuse Alveolar Hemorrhage
- 9.6.3. Nursing Assessment and Interventions

9.7. Most Relevant Emergencies in Post-Transplant Patients
- 9.7.1. Introduction
- 9.7.2. Sepsis and Septic Shock
- 9.7.3. Mucositis Grade III-IV
- 9.7.4. Implant Syndrome

9.7.5. Capillary Leakage Syndrome (CLS)
9.7.6. Acute GVHD and Chronic GVHD
9.7.7. Hemorrhagic Cystitis
9.7.8. Sinusoidal Obstructive Syndrome of the Liver (SOS)
9.7.9. Posterior Reversible Encephalopathy Syndrome (PRES)
9.7.10. Acute Kidney Failure
9.7.11. Respiratory Failure Post-HPT
9.7.11.1. Idiopathic Pneumonia Syndrome (IPS)
9.7.11.2. Diffuse Alveolar Hemorrhage (DAH)
9.7.11.3. Cryptogenic Organizing Pneumonia (COP)
9.7.11.4. Bronchiolitis Obliterans Syndrome (BOS)
9.7.12. Post-HPT Thrombotic Microangiopathy (TMA)
9.7.13. Cardiac Toxicity
9.7.14. Multiorgan Dysfunction Syndrome (MODS)
9.7.15. Transfer to Intensive Care Unit
9.8. Follow-Up HPT Nursing Consultation
9.8.1. HPT Nursing Consultation
9.8.2. Nursing Care in the Pre-Transplant Consultation for Hematopoietic Progenitors
9.8.2.1. Information About the Process
9.8.2.2. Reception at the HPT Unit and Basic Operational Recommendations
9.8.2.3. Anthropometric Measurements and Vital Signs
9.8.2.4. Peripheral Blood Test Pre-HPT
9.8.2.5. Introduction of the Multidisciplinary Team
9.8.2.6. Emotional Support to the Patient and Family
9.8.2.7. Resolving Doubts
9.8.3. Nursing Care in Post-HPT Follow-Up Consultations
9.8.3.1. Short-Term
9.8.3.1.1. Review of Information Provided at Discharge from Hospitalization
9.8.3.1.2. Surveillance Signs and Symptoms, Information on Warning Signs, Early Detection of Complications
9.8.3.1.3. Information on Measures to Avoid Infection: Avoid Contact with People with Flu-like Symptoms, Avoid Crowded Indoor Spaces
9.8.3.1.4. Dietary and Nutritional Recommendations
9.8.3.1.5. Vascular Access Care and Follow-Up: Pulmonary Artery Catheter (PAC), Peripherally Inserted Central Catheter (PICC)
9.8.3.1.6. Care and Monitoring of Nutritional Support Devices: Nasogastric (NG) Tube, Gastrostomy Button
9.8.3.1.7. Pain Assessment
9.8.3.1.8. Assessment of Activity
9.8.3.1.9. Health education
9.8.3.1.10. Information about Circuits in Day Hospital
9.8.3.1.11. Emotional Support to the Patient and Family
9.8.3.2. In the Long Term
9.8.3.2.1. Surveillance Signs and Symptoms
9.8.3.2.2. Early Detection of Toxicity Complications
9.8.3.2.3. Coordination with Other Specialists: Cardiology, Endocrinology, Traumatology
9.8.3.2.4. Chronic Monitoring: Symptomatic Treatments, Emotional Support, Adherence to Treatment
9.8.3.2.5. Follow-up Immunizations Post-HPT
9.8.3.2.6. Health Education on Healthy Habits for Children and Adolescents
9.9. New Therapies for Treating Post Allo-HSCT Complications
9.9.1. Donor CD34+ Progenitor Infusion for the Treatment of Implant Failure Secondary to Allo-HSCT
9.9.1.1. Candidate Patients
9.9.1.2. Procedure
9.9.2. Extracorporeal Photopheresis for the Treatment of GVHD
9.9.2.1. Candidate Patients
9.9.2.2. Procedure
9.9.3. Mesenchymal Stem Cell Infusion for the Treatment of GVHD
9.9.3.1. Candidate Patients
9.9.3.2. Procedure
9.9.4. Donor Lymphocyte Infusion. Immunotherapy in Patients Relapsing after Allogeneic HSCT
9.9.4.1. Candidate Patients
9.9.4.2. Procedure

Module 10. When the Response to Treatment is Not Adequate

10.1 Introduction
- 10.1.1. Response to Disease
- 10.1.2. Definition of Survival
- 10.1.3. Definition of Recurrence
- 10.1.4. Diseases or Situations with Higher Probability of Recurrences
- 10.1.5. Treatment Options
- 10.1.6. Reception and Accompaniment in the Relapse of the Disease
  - 10.1.6.1. Parents
    - 10.1.6.1.1. Emotional Reactions
    - 10.1.6.1.2. Coping
  - 10.1.6.2. Emotional Reactions and Coping with Relapse in Children and Adolescents

10.2 Concept, Rationale and Need for Clinical Trials in Pediatric Hematology
- 10.2.1. What is a Clinical Trial?
- 10.2.2. Historical Background, Legislation and Ethics of Experimentation with Drugs
  - 10.2.2.1. "The Canon of Medicine". Avicenna (Ibn Sina)
  - 10.2.2.2. First Clinical Trial in History. James Lind
  - 10.2.2.3. Experiments on Children in the Auschwitz Concentration Camp (Josef Mengele)
  - 10.2.2.4. Nuremberg Code (1946)
  - 10.2.2.5. Ethically Questionable Clinical Trials after the Nuremburg Code
  - 10.2.2.6. Declaration of Helsinki (1964)
  - 10.2.2.7. Good Clinical Practice Guidelines (1995) Why are Clinical Trials Necessary in Pediatric Hematology?
- 10.2.3. Why are Clinical Trials Necessary in Pediatric Hematology?
  - 10.2.3.1. Increase Overall Survival of Patients with Poor Prognosis
  - 10.2.3.2. Decrease Long-Term Sequelae

10.3. Design, Preparation and Implementation of a Clinical Trial
- 10.3.1. Design of a Clinical Trial
- 10.3.2. Clinical Trials Phases
- 10.3.3. Identification and Selection of Participating Centers
- 10.3.4. Medication and Hospital Pharmacy Service
- 10.3.5. Sample Analysis Laboratories
- 10.3.6. Economic Aspects of the Clinical Trial
- 10.3.7. Archive

10.4. Development of an Open Clinical Trial in a Center and Professionals involved
- 10.4.1. Initiation Visit
- 10.4.2. Monitoring Visit
- 10.4.3. Closing Visit
- 10.4.4. Investigator's File
- 10.4.5. Management of Adverse Events
- 10.4.6. Trial Medication
- 10.4.7. Inclusion of Patients
- 10.4.8. Trial Drug Administration, Disease Assessment and Follow-Up
- 10.4.9. Professionals Involved in a Clinical Trial
  - 10.4.9.1. Professionals in the Hospital Setting
  - 10.4.9.2. Pharmaceutical Company Professionals

10.5. The Role of Nursing Professionals in Pediatric Hematology Clinical Trials
- 10.5.1. Nurse in the Pediatric Hematology/Oncology Clinical Trial Team
- 10.5.2. Specific Training Requirements
  - 10.5.2.1. Training in Good Clinical Practice
  - 10.5.2.2. Training in Handling and Shipment of Biohazard Samples
  - 10.5.2.3. Specific Training for Each Clinical Trial
- 10.5.3. Responsibilities
- 10.5.4. Delegated Clinical Trial Activities
  - 10.5.4.1. Inventory Management
    - 10.5.4.1.1. Perishable Material
    - 10.5.4.1.2. Non-Perishable Material
  - 10.5.4.2. Management of Local Laboratory Samples
  - 10.5.4.3. Management of Central Laboratory Samples
  - 10.5.4.4. Nursing Techniques
  - 10.5.4.5. Drug Administration
  - 10.5.4.6. Source Records
  - 10.5.4.7. Electronic Data Collection Notebooks

10.5.5. Nursing Care
10.5.5.1. Basic Needs Care
10.5.5.2. Accompaniment
10.6. Current and Future Situation of Pediatric Hematology. Personalized Medicine
10.6.1. Sciences and Omics
10.6.2. Fundamentals of Translational Research
10.6.3. Definition of Personalized Medicine
10.6.4. High-Performance Sequencing Techniques
10.6.5. Analysis of Data
10.6.6. Bio Markers
10.6.7. Preclinical Models
10.7. Introduction, Objectives and Stages of the Therapeutic Approach in Pediatric Palliative Care
10.7.1. History of Palliative Care
10.7.2. Difficulties in the Application of Palliative Care in the Pediatric Population. The Challenge of Pediatric Palliative Care
10.7.3. Definition of Pediatric Palliative Care
10.7.4. Pediatric Palliative Care Groups
10.7.5. Peculiarities of Pediatric Palliative Care
10.7.6. Universal Principles of Palliative Care
10.7.7. Objectives of the Palliative Approach
10.7.8. Advanced Disease Situation. Turning Point
10.7.9. Stages of the Therapeutic Approach
10.7.10. Place of Care: Hospital vs. Home
10.8. Symptom Control in Pediatric Hematology Palliative Care (Includes Pain)
10.8.1. Diagnosis and Assessment of Symptoms
10.8.2. General Principles of Symptom Control
10.8.3. Symptoms to Palliate
10.8.3.1. Main Symptom to Palliate: Pain
10.8.3.2. General Symptoms
10.8.3.3. Constitutional Symptoms
10.8.3.4. Respiratory Symptoms
10.8.3.5. Digestive Symptoms
10.8.3.6. Neurological Symptoms
10.8.3.7. Other Symptoms
10.8.4. Prevention and Treatment
10.8.4.1. Non-Pharmacological Methods
10.8.4.2. Pharmacological Methods
10.9. Total Pain and Ethical Issues in Pediatric Palliative Care
10.9.1. Total Pain
10.9.1.1. Cicely Saunders
10.9.1.2. Concept of Total Pain
10.9.1.3. Pain Threshold
10.9.1.4. Basic Principles of Total Pain Relief
10.9.1.5. Pain, Suffering and Death
10.9.1.6. Barriers in the Management of Total Pain in Pediatric Hematology/Oncology
10.9.1.7. Dying with Dignity
10.10. Nursing Care During Terminal Phase and Last Days Situation in Pediatric Palliative Care
10.10.1. Diagnostic Principles of the Terminal Phase
10.10.2. Agony Phase or Last Days Situation (LDS)
10.10.2.1. Concept
10.10.2.2. Signs and Symptoms of the Agony Phase
10.10.2.3. Therapeutic Objectives
10.10.2.4. Symptom Control
10.10.2.5. Family Care
10.10.2.6. Palliative Sedation
10.10.2.7. Adjustment of Pharmacological Treatment
10.10.3. Palliative Sedation

Module 11. Fostering, Caring and Accompanying in Pediatric Hematology

11.1. Comprehensive View of the Care of Children with Hematologic Disorder and Their Family
- 11.1.1. Comprehensive View of Human Health
  - 11.1.1.1. Physical Health
  - 11.1.1.2. Mental Health
  - 11.1.1.3. Emotional Health
  - 11.1.1.4. Social Health
  - 11.1.1.5. Spiritual Health
- 11.1.2. The Nurse's View
  - 11.1.2.1. Emotions, Beliefs and Professional Development
  - 11.1.2.2. Fostering, Caring and Accompanying
  - 11.1.2.3. Biomedical Model
  - 11.1.2.4. Salutogenic Model
- 11.1.3. Systemic View of Care
  - 11.1.3.1. Consistency of the Person
  - 11.1.3.2. System Consistency
  - 11.1.3.3. Consistency of the "Soul"
- 11.1.4. Fostering, Caring and Accompanying in a Comprehensive Way
  - 11.1.4.1. Nursing Roles and Competencies
  - 11.1.4.2. The Interdisciplinary Work of Professionals
  - 11.1.4.3. Transdisciplinary Challenges of the Nursing Professional

11.2. Theories and Models That Approach the Comprehensive Vision of Nursing
- 11.2.1. The Salutogenic Model Applied to Care
  - 11.2.1.1. Well-Being Assets
  - 11.2.1.2. Personal Asset Development
  - 11.2.1.3. System Asset Development
  - 11.2.1.4. Institutional Asset Development
- 11.2.2. Personal Asset Development
- 11.2.3. Helping Relationship Model: Hildegarde Peplau
- 11.2.4. Health Promotion Model: Nola Pender
- 11.2.5. Diversity Theory and the Universality of Care: Madeleine Leininger
- 11.2.6. Theory of Human Care: Jean Watson
- 11.2.7. Comfort Theory: Katharine Kolkaba
- 11.2.8. Marie Françoise Colliére. Promoting Life

11.3. The Facilitating Role of Nursing in Pediatric Hematology
- 11.3.1. Facilitating Role
- 11.3.2. Nursing Perspective
- 11.3.3. Facilitating Care from the Different Nursing Roles
- 11.3.4. Humanization of Care
- 11.3.5. Support Orders

11.4. Emotional Skills Profile for Pediatric Hematology Nursing
- 11.4.1. The Need to Promote the Social-Emotional Development of the Nursing Professional
- 11.4.2. Emotional Competency Model for Nursing
- 11.4.3. Everything that Can Be Done with an Emotion
- 11.4.4. Health in Pediatric Hematology Nursing

11.5. Therapeutic Communication in Pediatric Hematology
- 11.5.1. Specific Skills for Effective and Affective Communication
- 11.5.2. Key Ideas in Relation to the Child and the Family
- 11.5.3. Key Ideas in Relation to Times of the Disease
- 11.5.4. Key Ideas in Relation to Intra- and Interprofessional Practice

11.6. The Influence of the Environment and Surroundings when Accompanying Children with Hematologic Pathology
- 11.6.1. Occupational Health and Work Teams
- 11.6.2. Architecture of Spaces
- 11.6.3. Responsible Environment with a Rights Perspective
- 11.6.4. The Significance of Spaces

11.7. Accompaniment for the Family System in Pediatric Hematology
- 11.7.1. Family as a System
- 11.7.2. Caring for the Caregiver
- 11.7.3. Accompanying Processes of High Emotional Impact
- 11.7.4. Parenting Support
- 11.7.5. Barriers to Care
- 11.7.6. Coping With the Disease
- 11.7.7. Systemic Support

11.8. Psychomotor and Affective Development of Infants and Preschoolers with Hematologic Disorders
- 11.8.1. Accompany the Specific Characteristics in the Infant
- 11.8.2. Accompany the Specific Characteristics in the Preeschool Children
- 11.8.3. Psychomotor and Emotional Development During the Disease
  - 11.8.3.1. Psychomotor Development (Physical Health)
  - 11.8.3.2. Language and Emotional Comfort (Mental and Emotional Health)
  - 11.8.3.3. Socialization (Social Health)
  - 11.8.3.4. Meaning of Life
    - 11.8.3.4.1. Love and Contact
    - 11.8.3.4.2 Growing Up Playing

11.9. Emotion, Storytelling, and Meaningful Playtime in School-Aged Children with Hematologic Disorder
- 11.9.1. Accompany the Specific Characteristics of the School-Age Child
- 11.9.2. Personality Development During Disease
  - 11.9.2.1. Coping (Emotional Health)
  - 11.9.2.2. The Importance of Storytelling (Mental Health)
  - 11.9.2.3. Socialization (Social Health)
- 11.9.3. Meaning of Life
  - 11.9.3.1. Self-Esteem, Self-Image and Self-Concept
  - 11.9.3.2. Educational Support
  - 11.9.3.3. Meaningful Play

11.10. Emotion, Storytelling and Socialization in Adolescents with Hematologic Disorder
- 11.10.1. Accompany the Specific Characteristics of the Adolescent
- 11.10.2. Personality Development During Disease
  - 11.10.2.1. Coping (Emotional Health)
  - 11.10.2.2. The Importance of Storytelling (Mental Health)
  - 11.10.2.3. Socialization (Social Health)
- 11.10.3. Meaning of Life
  - 11.10.3.1. Self-Esteem, Self-Image and Self-Concept
  - 11.10.3.2. Educational and Social Support
  - 11.10.3.3. Affective-Sexual Development

Recognize the primary needs of pediatric patients who require care, specializing in the most up-to-date program on the market"

06

Methodology

This academic program offers students a different way of learning. Our methodology uses a cyclical learning approach: **Relearning.**

This teaching system is used, for example, in the most prestigious medical schools in the world, and major publications such as the **New England Journal of Medicine** have considered it to be one of the most effective.

Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"

At TECH we use the Case Method

What should a professional do in a given situation? Throughout the program you will be presented with multiple simulated clinical cases based on real patients, where you will have to investigate, establish hypotheses and, finally, resolve the situation. There is an abundance of scientific evidence on the effectiveness of the method. Specialists learn better, faster, and more sustainably over time.

With TECH you will experience a way of learning that is shaking the foundations of traditional universities around the world.

According to Dr. Gérvas, the clinical case is the annotated presentation of a patient, or group of patients, which becomes a "case", an example or model that illustrates some peculiar clinical component, either because of its teaching power or because of its uniqueness or rarity. It is essential that the case is based on current professional life, in an attempt to recreate the actual conditions in a veterinarian's professional practice.

Did you know that this method was developed in 1912, at Harvard, for law students? The case method consisted of presenting students with real-life, complex situations for them to make decisions and justify their decisions on how to solve them. In 1924, Harvard adopted it as a standard teaching method"

The effectiveness of the method is justified by four fundamental achievements:

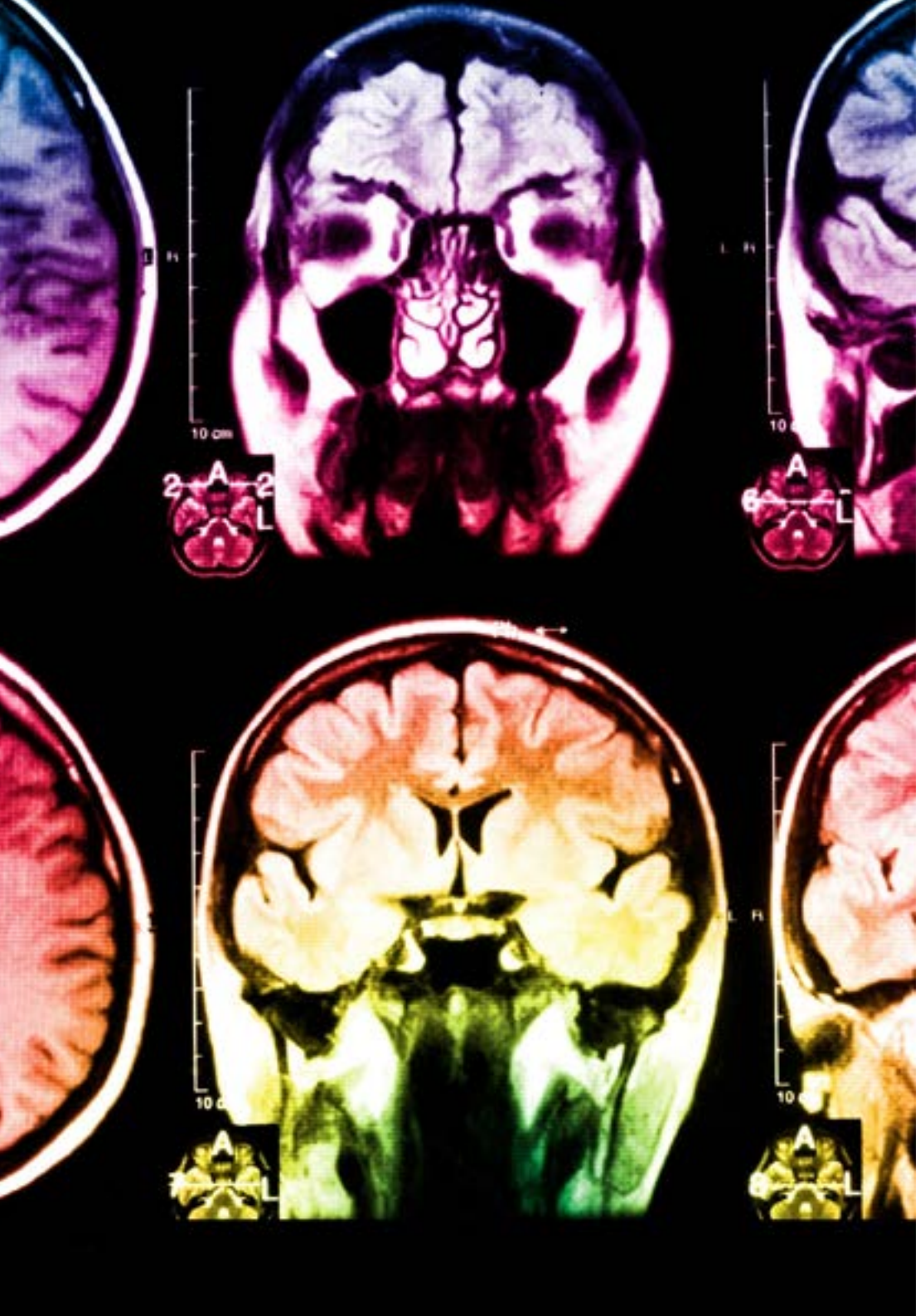
1. Veterinarians who follow this method not only manage to assimilate concepts, but also develop their mental capacity through exercises to evaluate real situations and knowledge application
2. Learning is solidly translated into practical skills that allow the student to better integrate into the real world.
3. Ideas and concepts are understood more efficiently, given that the example situations are based on real-life.
4. The feeling that the effort invested is effective becomes a very important motivation for veterinarians, which translates into a greater interest in learning and an increase in the time dedicated to working on the course.

Relearning Methodology

At TECH we enhance the case method with the best 100% online teaching methodology available: Relearning.

This university is the first in the world to combine the study of clinical cases with a 100% online learning system based on repetition, combining a minimum of 8 different elements in each lesson, a real revolution with respect to the mere study and analysis of cases.

Veterinarians will learn through real cases and by resolving complex situations in simulated learning environments. These simulations are developed using state-of-the-art software to facilitate immersive learning.



At the forefront of world teaching, the Relearning method has managed to improve the overall satisfaction levels of professionals who complete their studies, with respect to the quality indicators of the best online university (Columbia University).

With this methodology more than 65,000 veterinarians have been trained with unprecedented success in all clinical specialties, regardless of the surgical load. Our teaching method is developed in a highly demanding environment, where the students have a high socio-economic profile and an average age of 43.5 years.

Relearning will allow you to learn with less effort and better performance, involving you more in your training, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation for success.

In our program, learning is not a linear process, but rather a spiral (learn, unlearn, forget, and re-learn). Therefore, we combine each of these elements concentrically.

The overall score obtained by TECH's learning system is 8.01, according to the highest international standards.

This program offers the best educational material, prepared with professionals in mind:

Study Material

All teaching material is produced by the specialists who teach the course, specifically for the course, so that the teaching content is highly specific and precise.

These contents are then applied to the audiovisual format, to create the TECH online working method. All this, with the latest techniques that offer high quality pieces in each and every one of the materials that are made available to the student.

Latest Techniques and Procedures on Video

TECH introduces students to the latest techniques, the latest educational advances and to the forefront of current and procedures of veterinary techniques. All of this in direct contact with students and explained in detail so as to aid their assimilation and understanding. And best of all, you can watch the videos as many times as you like.

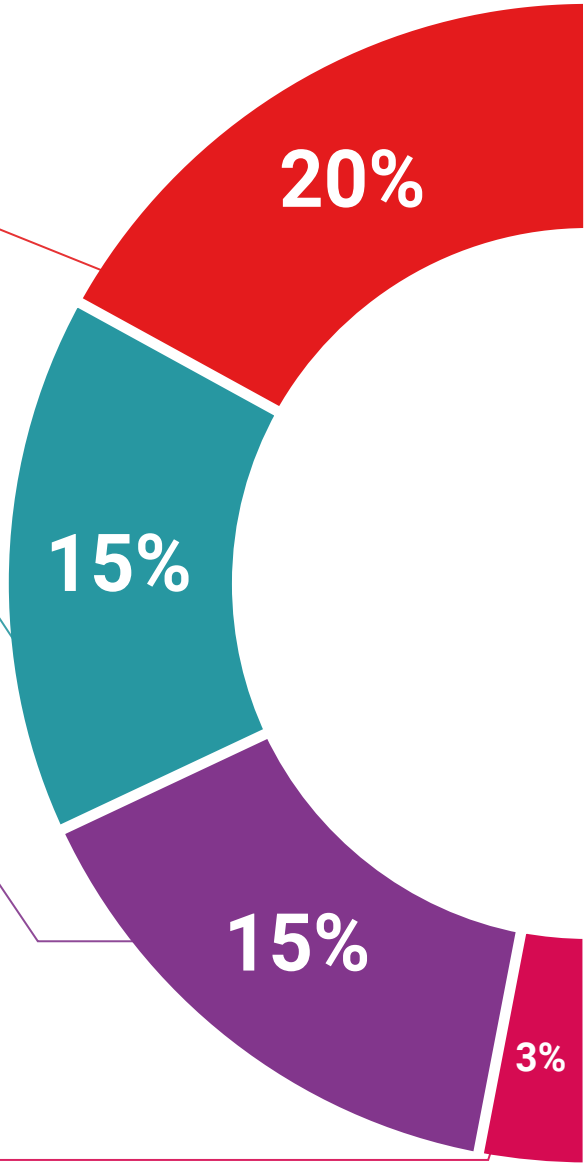
Interactive Summaries

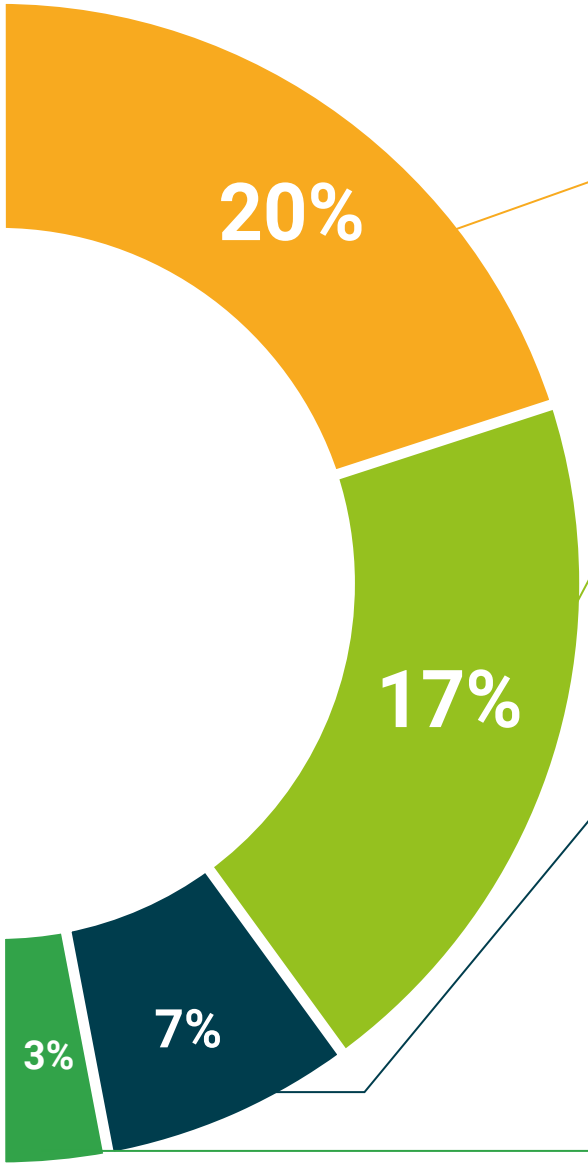
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

This exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".

Additional Reading

Recent articles, consensus documents and international guidelines, among others. In TECH's virtual library, students will have access to everything they need to complete their course.





Expert-Led Case Studies and Case Analysis

Effective learning ought to be contextual. Therefore, TECH presents real cases in which the expert will guide students, focusing on and solving the different situations: a clear and direct way to achieve the highest degree of understanding.

Testing & Retesting

We periodically evaluate and re-evaluate students' knowledge throughout the program, through assessment and self-assessment activities and exercises, so that they can see how they are achieving their goals.

Classes

There is scientific evidence suggesting that observing third-party experts can be useful.

Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.

Quick Action Guides

TECH offers the most relevant contents of the course in the form of worksheets or quick action guides. A synthetic, practical, and effective way to help students progress in their learning.

07

Certificate

The Professional Master's Degree in Pediatric Hematology Nursing guarantees you, in addition to the most rigorous and updated training, access to a Professional Master's Degree issued by TECH Technological University.

Successfully complete this program and receive your university degree without travel or laborious paperwork"

This **Professional Master's Degree in Pediatric Hematology Nursing** contains the most complete and updated scientific program on the market.

After the student has passed the assessments, they will receive their corresponding **Professional Master's Degree** issued by **TECH Technological University** via tracked delivery*.

The certificate issued by **TECH Technological University** will reflect the qualification obtained in the Professional Master's Degree, and meets the requirements commonly demanded by labor exchanges, competitive examinations, and professional career evaluation committees.

Title: **Professional Master's Degree in Pediatric Hematology Nursing**

Official Nº of hours: **1,500 h.**


tech technological university

Awards the following

CERTIFICATE

to

Mr./Ms. _____, with identification number _____.

For having successfully passed and accredited the following program

PROFESSIONAL MASTER'S DEGREE

in

Pediatric Hematology Nursing

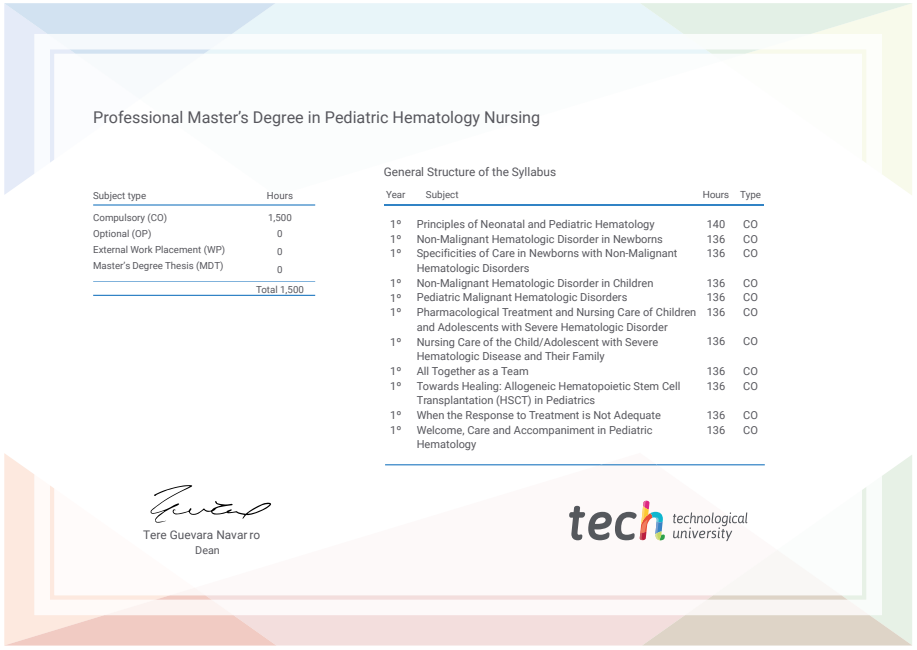
This is a qualification awarded by this University, equivalent to 1,500 hours, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH is a Private Institution of Higher Education recognized by the Ministry of Public Education as of June 28, 2018.

June 17, 2020

Tere Guevara Navarro
Dean

This qualification must always be accompanied by the university degree issued by the competent authority to practice professionally in each country. Unique TECH Code: AFWORD23S techtitute.com/certificates


Professional Master's Degree in Pediatric Hematology Nursing

Subject type	Hours
Compulsory (CO)	1,500
Optional (OP)	0
External Work Placement (WP)	0
Master's Degree Thesis (MDT)	0
	Total 1,500

General Structure of the Syllabus

Year	Subject	Hours	Type
1º	Principles of Neonatal and Pediatric Hematology	140	CO
1º	Non-Malignant Hematologic Disorder in Newborns	136	CO
1º	Specificities of Care in Newborns with Non-Malignant Hematologic Disorders	136	CO
1º	Non-Malignant Hematologic Disorder in Children	136	CO
1º	Pediatric Malignant Hematologic Disorders	136	CO
1º	Pharmacological Treatment and Nursing Care of Children and Adolescents with Severe Hematologic Disorder	136	CO
1º	Nursing Care of the Child/Adolescent with Severe Hematologic Disease and Their Family	136	CO
1º	All Together as a Team	136	CO
1º	Towards Healing: Allogeneic Hematopoietic Stem Cell Transplantation (HSCT) in Pediatrics	136	CO
1º	When the Response to Treatment is Not Adequate	136	CO
1º	Welcome, Care and Accompaniment in Pediatric Hematology	136	CO

Tere Guevara Navarro
Dean

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*Apostille Convention. In the event that the student wishes to have their paper certificate issued with an apostille, TECH EDUCATION will make the necessary arrangements to obtain it, at an additional cost.

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Professional Master's Degree

Pediatric Hematology Nursing

Course Modality: **Online**

Duration: **12 months**

Certificate: **TECH Technological University**

Official Nº of hours: **1,500 h.**

Professional Master's Degree

Pediatric Hematology Nursing

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