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Pediatric ***Nursing***



**PEDIATRIC
NURSING**

UU No 28 tahun 2014 tentang Hak Cipta

Fungsi dan sifat hak cipta Pasal 4

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Cerdas, Bahagia, Mulia, Lintas Generasi.

PEDIATRIC NURSING

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Editor :

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Desain Cover :

Ali Hasan Zein

Sumber :

A3pfamily (www.shutterstock.com)

Tata Letak :

G.D. Ayu

Proofreader :

Mira Muarifah

Ukuran :

x, 294 hlm, Uk: 15.5x23 cm

ISBN :

978-623-02-7089-5

Cetakan Pertama :

Agustus 2023

Hak Cipta 2023, Pada Penulis

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(Grup Penerbitan CV BUDI UTAMA)

Anggota IKAPI (076/DIY/2012)

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FOREWORD

Praise God Almighty for His Mercy and goodness so that this teaching material can be completed properly. This teaching material is arranged consisting of eleven chapters where the arrangement refers to Learning Outcomes in Child Nursing Course consisting of: 1) Basic concepts of child nursing; 2) The concept of healthy child nursing; 3) Growth and development screening procedures in children; 4) Essential neonatal concept; 5) Procedures for implementing nursing care in infants based on essential neonate; 6) Nursing care in sick children; 7) The concept of nursing care in children with impaired fulfillment of pathological nutritional needs of the digestive and metabolic endocrine systems; and 8) Integrated Management Of Childhood Illness (IMCI) in-service settings.

Hopefully, this book can be helpful in improving the knowledge, attitudes, and skills of the readers. Opportunities are also expected to be given for preparing teaching materials for children's nursing practice and student practice in the laboratory.

Constructive suggestions and criticisms and perfection of teaching materials are expected from ladies and gentlemen and all students.

Finally, a big thank you to all parties and readers who have used this teaching material as a source of knowledge.

Author

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CHAPTER 1

BASIC CONCEPTS OF PEDIATRIC NURSING

INTRODUCTION

This book is the initial book that becomes the primary source of teaching materials for Nursing students in studying child nursing courses. This book is prepared based on the AIPVIKI 2022 curriculum, which consists of 4 credits (2 credits of theory and two credits of laboratory practice). This chapter will be explained the philosophical concepts and paradigms of child nursing, principles of child nursing, family-centered care (FCC), atraumatic care (minimizing the impact of hospitalization, the child protection system in Indonesia, and the role of child nursing.

Changes in people's views on the importance of health impact the advancement of nursing in more specific fields, including the division into age groups: pediatric nursing, nursing in adults, and older people. The increasing needs of society for the importance of individual, group, and community health encourage nursing science to develop to meet these needs. Child nursing is a focus because this group is one of the special groups vulnerable to health problems.

Pediatric nursing differs significantly from adult nursing, where children are not miniature adults. This change in perspective significantly affects the approach techniques used in pediatric nursing services. To understand pediatric nursing better, we need to know about the philosophy of pediatric nursing. The philosophy of child nursing is the basis for thinking in the application of pediatric nursing.

Indonesia's children are the nation's most valuable asset and determinant of the future. Currently, Indonesia has the status of a middle-income country. Maternal and child mortality rates have fallen, primary education enrollment rates are approaching 100 percent, and basic health services are available in all regions—including remote areas.

Indonesia today has the potential to realize what economists call a 'demographic dividend,' an opportunity that must not be missed. Two-thirds of Indonesia's population is in the productive age range (15–64 years), potentially an extraordinary engine of development; therefore, efforts are needed to improve in the fields of health, welfare, education, and other fields that will determine their ability as a generation (UNICEF, 2020)—nurses, as a profession, set standards of care as a reference in carrying out their duties. As part of nursing science, pediatric nurses have their standards, namely the standards of pediatric nursing practice. Involving and empowering children and families is the role of pediatric nurses to achieve optimal levels of well-being for children.

To achieve optimal nursing care, you, as a nurse, must participate in policy-making in the nursing field. As a professional nurse, you will appear more confident and steady, able to understand the concept of pediatric nursing and its application as long as you provide comprehensive and humane nursing care services. With these skills, you can become a role model for the world of health education and nursing practitioners while interacting with patients, families, and the community. A good understanding of the material in this chapter will improve your daily comprehension skills, attitudes, and actions, especially at work; you will be able to collaborate well and be liked by colleagues, patients, and family, as well as other fields of knowledge that collaborate with you during your duties as a professional nurse.

KEY TERMS

1. Family-Centered Care
2. Atraumatic Care
3. Child Protection
4. Role of Pediatric Nurse

LEARNING OBJECTIVES

After studying this chapter, students are expected to be able to:

1. Explaining the Concept Philosophy and Paradigm of Pediatric Nursing
2. Explaining the Concept Principles of Pediatric Nursing:
 - a. Explaining the Concept of Family-centered care (FCC)
 - b. Applying the Concept of Atraumatic Care (Minimizes the Impact of Hospitalization)
 - c. Applying the Concept Child Protection System in Indonesia

- d. Understand the Role of the Pediatric Nursing
- 3. Analyze Trends and Issues in Pediatric Nursing
- 4. Analyze Evidence-Based Practice in Pediatric Nursing

A. The Philosophy and Paradigm of Pediatric Nursing

Philosophy is the belief held by nurses in providing nursing services to children. The nursing paradigm is a foundation of thinking for nurses in applying nursing science. The foundation of thinking consists of four components, such as; a) human beings, in this case, children; b) nursing; c) healthy-sick; and d) the environment that is the basis for thinking in applying pediatric nursing. In this figure (Figure 1.1), explain the four interrelated components of the paradigm, where one component will affect the other; for example, when a child is sick, it can be influenced by environmental factors and requires treatment.

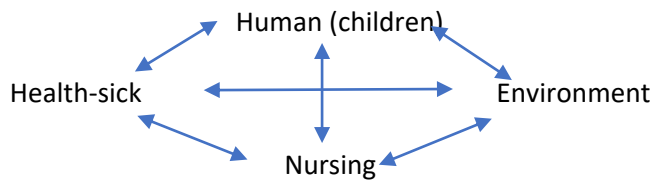


Figure 1.1 The Basic Component of the Philosophy Pediatric Nursing (Damanik & Sitorus, 2019)

Basic Component of the Philosophy of Pediatric Nursing

a) Human (Children)

In nursing, the child who becomes an individual (client) is a child. Children are defined as someone aged < 18 years and in a period of growth and development with special needs, namely physical, psychological, social, and spiritual needs. Children are individuals who are in a range of developmental changes starting from infancy to adolescence. In developing, children have physical, cognitive, self-concept, coping patterns, and social behavior. Physical and cognitive growth traits are not the same in all children. Some children have rapid development, and others are slow. The development of self-concept, coping patterns, social behavior, and emotional responses has been formed since infancy but is imperfect and will develop with age. Coping patterns are shown with the baby crying when feeling hungry; social

behavior is shown when the baby responds to other people's stimuli, and emotional response is shown when the baby is left behind by parents by showing crying, shouting, withdrawing, and giving in to silent situations. Children need to be prioritized in nursing services because they cannot meet their needs independently like adults. The difference in physical size and physiological maturity between children and adults causes the fulfillment of children's needs to be prioritized. The ability to think of children with adults is different because the child's brain function is developing while the brain function of adults is mature. Past experiences will tend to have a psychological impact on children, which affects their growth and development both positively and negatively. In contrast, in adults, past experiences tend to form good and mature coping mechanisms.

b) Health–Sick

The healthy-sick range is a condition in which the child is in a health status that includes well-being, optimally healthy, healthy, sick, chronically ill, and dead. This range of circumstances is a measurement tool to assess health status that is dynamic at any time. As long as it is within these ranges, the child needs nurse assistance directly or indirectly. The nurse's efforts as long as the child is in a healthy range to improve the degree of health to reach an optimal level of physical, social, and spiritual well-being. Conversely, if the child is in condition, sick, critical, or dies, the nurse always provides help and support to the family. Healthy is generally defined as a state of complete physical, mental, and social well-being and not merely the absence of disease and infirmity.

c) Environment

The environment consists of internal and external environments that play a role in changes in children's health status. The internal environment, such as children born with congenital abnormalities, can affect the child's health status; for example, during the development period, children are easily sick. The external environment, such as parenting, insufficient food intake, environmental conditions, and culture, can cause children to experience nutritional problems, and stunting, which can affect children's health status in the future.

d) Nursing

Nursing is a form of service to children that involves parents with the aim that children can achieve optimal growth and development. Goals can be achieved if the family is directly involved in the child's care because the family has a strong emotional connection so that the child can be cared for effectively. The family has a role in meeting the needs of children and protecting children, so it plays a role in determining the success of nursing care. (Hockenberry et al., 2017) define the role of the family, namely maintaining survival for children and families, maintaining child safety and child welfare to achieve a better future for children through interaction with each other in realizing child welfare.

B. Principles of Child Nursing

The provision of nursing care to children is undoubtedly different from adults. To carry out nursing care in children, it must be adjusted to the child's age and his growth and development abilities to achieve optimal care. Treatment that is not optimal will have a negative impact on children both physiologically and psychologically (Hockenberry et al., 2017).

For this reason, nurses must pay attention to the principles of child nursing, which consist of the following:

- a) Children are not miniature adults but children as unique individuals, meaning that they should not look at children in terms of their physique only but as unique individuals who have a pattern of growth and development towards the process of maturity.
- b) Children are unique individuals and have needs according to the stage of growth and development. Children, as unique individuals, have different needs from one another according to the ability of growth and development that has been achieved. Physiological needs include fluids and nutrients, elimination, rest and sleep, play activities, and others, while psychological, social, and spiritual needs will be seen according to their growth and development abilities.
- c) Children's nursing services are oriented towards disease prevention efforts and improving health status to reduce morbidity and mortality rates in children considering that children are the successors of the nation's generation.
- d) Children's nursing services are oriented towards disease prevention efforts and improving health status with the aim of reducing morbidity

and mortality rates in children considering that children are the successors of the nation's generation.

- e) The practice of child nursing includes contracts with children and families to assess, intervene and improve children's welfare and prevent the risk of health problems in children, using the nursing process following moral (ethical) and legal aspects.
- f) The practice of child nursing includes contracts with children and families to assess, intervene and improve children's welfare and prevent the risk of health problems in children, using the nursing process in accordance with moral (ethical) and legal aspects.
- g) In the future, child nursing will tend to focus on knowing aspects of children's lives, namely studying the needs of children individually according to the growth and development abilities of each child.

An explanation of the principles of pediatric nursing is discussed through two components, namely:

- 1) Standards of Care for Pediatric Nursing in Indonesia
- 2) Socio-Cultural Influences on Children's Health

1) Standards of Care for Pediatric Nursing in Indonesia

Standards of Care for Pediatric Nursing in Indonesia based on the Regulation of the Minister of Health no 25 of 2014 It is stated that essential neonatus services are carried out at birth 0 (zero) to 6 (six) hours (Box 1.1); and after birth 6 (six) hours to 28 (twenty-eight) days (Box 1.2). Standards of care for Infant, Toddler, and Preschool health services are aimed at improving the continuity and quality of life of Infants, Toddlers, and Preschools (Box 1.3), including the provision of:

Box. 1.1 Standards of Care for Pediatric Nursing In essential neonatal services for infants aged 0 (zero) to 6 (six) hours, namely:

1. Keeping the Infant warm;	7. Physical examination of the newborn
2. Early initiation of breastfeeding;	8. Monitoring of danger signs;
3. Cutting and care of the umbilical cord;	9. Management of newborn asphyxia;
4. Administration of vitamin K1 injections;	10. Provision of personal identification marks; and
5. administration of antibiotic eye ointment;	11. Refer cases that cannot be treated in stable, timely conditions to more capable healthcare facilities.
6. Administration of hepatitis B0 immunization;	

Box. 1.2 Standards of Care for Pediatric Nursing In essential neonatal services for infants aged 6 (six) hours to 28 (twenty-eight) days, namely:

1. Keeping the Infant warm;	6. Handling of newborn diseases and congenital abnormalities; and
2. Umbilical cord care;	7. Refer cases that cannot be treated in stable, timely conditions to more capable healthcare facilities
3. Examination of newborns;	
4. Kangaroo care for low-birth-weight infants;	
5. Prophylactic and immunization vitamin K1 status check;	

The provision of information and education regarding newborn health services is carried out no later than 24 hours after birth, including:

- a. newborn care;
- b. Exclusive breastfeeding;
- c. danger signs in newborns;
- d. health services for newborns; and
- e. newborn screening.

Box 1.3 Standard of care for Infant, Toddler, and Preschool health services are aimed at improving the continuity and quality of life of Infants, toddlers and Preschools, including the provision of:

1. Exclusive breastfeeding up to 6 months of age;	6. Vitamin A;
2. Breast milk up to 2 (two) years;	7. Parenting efforts; h. growth monitoring;
3. Complementary Food for Breast Milk (MP ASI) starting at the age of 6 months;	8. Monitoring progress;
4. Complete basic immunization for infants;	9. Monitoring of growth and development disorders;
5. DPT/HB/Hib follow-up immunization at 18 months of age and measles immunization at 24 months of age;	10. IMCI;
	11. Refer cases that cannot be treated in stable, timely conditions to more capable healthcare facilities

Further material can be studied in the Regulation of the Minister of Health number 25 of 2014; [click here](#) (Permenkes RI, 2014).

Based on the Regulation of the Minister of Health of the Republic of Indonesia number 21 of 2021 in article 21, paragraph 6 states, health services for newborns include:

- 1) Neonatal health services are essential with reference to the integrated management approach of sick toddlers;
- 2) Newborn screening;
- 3) Stimulation of early intervention detection of developmental growth; and
- 4) Provision of communication, information, and education to mothers and their families regarding the care and care of newborns.

Postpartum care for newborns and essential neonate services starting from 6 hours to 28 days of age include:

- 1) Keeping the baby warm;
- 2) Neonatal screening using Integrated Management of Young Infants;
- 3) Guidance on breastfeeding and monitoring the adequacy of breast milk;
- 4) Kangaroo Method Care;
- 5) Neonatal growth monitoring;
- 6) Most common problems in neonates

Newborn Screening

Neonatal screening is an action to find out congenital abnormalities as early as possible so that intervention can be carried out as soon as possible in an effort for better health services. Newborn screening includes at least congenital hypothyroid screening, which is carried out through blood

a sampling of 2-3 drops on the heel of infants aged at least 48 to 72 hours and a maximum of 2 weeks by health workers at health care facilities providing Maternal and Child Health services.

Harbuwono et al., (2018) mentions thyroid hormone disorders or Congenital Hypothyroidism in babies born at high risk of causing serious health problems. For this reason, treatment is needed as early as possible, considering that thyroid hormones have an important role in supporting the growth and development of children, height, sufficient weight, and good intelligence, "Thyroid hormone disorders can interfere with the development and growth, especially in the child's brain nerves, as a result of which children do not grow optimally, tend to be short and underweight. Data from Badan (BPS, 2022) shows that the prevalence of very short and short toddlers was 27.67% in 2019. Late case discovery and treatment can cause children to experience disability and mental

retardation. Giving therapy before the child is one month old can prevent damage to the brain nerves so that children can grow well. The Ministry of Health is relaunching the Congenital Newborn Hypothyroid Screening program in all healthcare facilities in Indonesia. Congenital Hypothyroid Screening or congenital thyroid hormone deficiency screening is mandatory for all newborns. This program is an implementation of primary care transformation that emphasizes preventive promotion efforts considering that most cases of Congenital Hypothyroid deficiency do not show symptoms, so parents do not realize it. New typical symptoms appear as children get older (Communication and Public Service Bureau, Ministry of Health, 2022). For further information, please contact the Ministry of Health's Halo hotline number via hotline number 1500-567, SMS 081281562620, facsimile (021) 5223002, 52921669, and email address kontak@kemkes.go.id (MF).

More seen on [click here](#) (Kemenkes RI, 2022).

If the results of congenital hypothyroid screening show positive results, treatment should be done before the baby is 1 (one) month old to avoid disability, growth disorders, and mental and cognitive retardation. Congenital hypothyroidism occurs when the hypothyroid has decreased function or is not functioning since birth as a result of anatomical abnormalities, thyroid hormone formation disorders, or iodine deficiency. Further provisions regarding congenital hypothyroid screening are explained in the Regulation of the Minister of Health of the Republic of Indonesia Number 78 of 2014 concerning Congenital Hypothyroid Screening, more seen on

[Click here](#) (Republik Indonesia, 2022)

Essential neonatal services are carried out at least three times, namely:

- a. 1 (one) time at the age of 6-48 hours;
- b. 1 (one) time at the age of 3-7 days; and
- c. 1 (one) time at the age of 8-28 days.

Box 1.4 Types of Newborn Health Services (Permenkes RI, 2021)

No	Type of Examination/Service	Neonatal Visit 1	Neonatal Visit 2	Neonatal Visit 3
		6–48 hours	3–7 days	8–28 days
1	Examination using the Young Baby Integrated Management form	V	V	V
2	For Regions that have carried out Congenital Hypothyroid Screening	V	V	-
3	1) Congenital Hypothyroid Screening Test	-	V	-
4	2) Congenital Hypothyroid Screening test results	-	V	V
5	3) Confirmation of Congenital Hypothyroid Screening Results	-	V	V
6	Action (therapy/referral/feedback)	V	V	V
7	Recording in the mother and child Card book and infant cohort	V	V	V

Information; V: Routine Check

Newborns get access to health checks by health workers at Polindes, Poskesdes, Public Health Center, midwives' independent practices, primary clinics, main clinics, Posyandu, and/or home visits using the Manajemen Terpadu Bayi Muda (MTBM) approach (Kemenkes RI, 2019). Recording of Postpartum Services for Newborns includes a registration form for young infants less than two months, an outpatient registered for young infants less than two months, Infant Cohort register, and MCH Book. Further material can be studied in the Minister of Health Regulation number 21 of 2021, more seen on [click here](#) (Permenkes RI, 2021).

2) Socio-Cultural Influences on Children's Health (Lippincott Williams & Wilkins, 2015)

a) Ethnicity

Ethnicity refers to the beliefs or beliefs of a particular group with similar customs, language, and characteristics within that group. Indonesia is known for its ethnic diversity. Pediatric nurses should be aware that different ethnic groups can have different views on health care. For example, in certain ethnicities, fathers are the decision-makers in the family. When the child is sick, the rest of the family cannot make the decision to take the child to health care until the father comes and makes the decision. In this ethnicity, the father is considered the person who

knows best what is best for all family members. Other ethnic groups believe that pain should not be shown. Children of this ethnic group may get up and walk or converse or may appear stoic, despite the pain. This can make it difficult for nurses to assess or even detect the pain a child is experiencing.

b) Nutrition

Diet really needs to be fulfilled, especially when the child is sick. In certain families, some do not consume fish or meat because of the belief that fishy smelly fish or meat can cause hypertension, gout, and so on. The nurse must be able to explore the family's views on health, illness, diet, and so on. The pediatric nurse should conduct a thorough assessment of the family's confidence in providing complete care and keeping the family from being offended.

c) Socioeconomic Factors

Low socioeconomic factors will affect children's health because the needs of children and families are not met. Poor health status of children as a result of poverty due to lack of money or resources needed for families to survive. Families living in neighborhoods with low socioeconomic levels certainly have limited access to adequate healthcare facilities, among others, due to sparse health facilities or the availability of minimal transportation to healthcare facilities.

d) Work

Another concern arises when the child is sick, but both parents work, so they do not have time to take their child to get treatment. Parents cannot leave work due to socioeconomic factors or do not have time off from work. If a parent cannot take time off, and health care isn't available after work hours end, chances are the child isn't getting the care he or she needs.

e) Religion

Religion greatly influences families in making decisions to seek health care. Child caregivers should be aware of what beliefs the family believes and help ensure that meeting the child's care needs does not conflict with the family's beliefs.

f) School

Schools usually reinforce the concept of right and wrong or moral values. Schools help children learn rules and regulations and introduce them to the concept of authority figures other than their parents. A child who has a negative experience with the school will be afraid of hospital rules because they think hospital rules are the same as school. Children who have positive experiences with the school will be more likely to apply their experiences to the healthcare environment. It is essential for pediatric nurses to remember that some children are homeschooled.

g) Peer Influences

Peer relationships are relationships that a child has with other individuals in the same age group. A child's ability to be part of a peer group is influenced by his beliefs or attitudes that are similar to others in his group. Using social media and cell phones, friends are only one screen away. Nurses should remember that with the use of social media, there is the potential for cyberbullying. A child may try to change his or her beliefs or behavior to feel equal and accepted in the group. Children may behave negatively and risk their health to conform to their peers' behavior, for example, experimenting with smoking, drinking alcohol, or using drugs.

h) Health-Related Beliefs and Practices

Health-related beliefs and practices of the family have a strong influence on how often they will seek health care for their child. If family members hesitate to seek health care for themselves, they commonly won't seek care for their child until he becomes seriously ill. Beliefs and actions in making decisions to obtain health care are closely related to previous experiences. Families who have had negative experiences will be reluctant to seek care when their child is sick. Some experiences that can cause trauma to children and families, namely; neglect and lack of a good response during treatment, poor and dirty health facilities, slow pain management, physical trauma such as falls or multiple infusions due to nurses failing to find veins, untidy suturing of wounds, unsterile wound care that causes infection, difficulty seeing doctors, verbal abuse and observation of family members in health care facilities. How to convince families to build positive experiences and perceptions about health services, namely • talk to family members carefully about bad experiences they have had during health care, explore the worries and

discomforts they feel and acknowledge those worries are natural, • ensure that the concerns felt by the family will not be repeated because of the situation and regulations in health care has changed and has been very well executed • encourage family members to be actively cooperative in supporting the child's health care as well as commend family members for the active participation made during their child's care.

C. Family-Centered Care (FCC)

Should parents be involved in caring for children while their children are being cared for? Of course, it must be involved. Why involved parents? Because children cannot be far from their parents and parents have resources that can help children heal, families are critical to be involved in care, where the term is family-centered care. Family-Centered Care (FCC) is defined as a philosophy of family-centered care, recognizing the family as a constant in the child's life. Family-centered care believes in individual support, respect, encouragement, and enhancement of family strengths and competencies. Nursing intervention using a family-centered care approach emphasizes that policy-making, treatment program planning, health facility design, and daily interactions between clients and health workers must involve families. In family-centered care, there is individual support, respect, encouragement, increased strength, and competence of the family. Nursing interventions using a family-centered care approach emphasize that policy-making, treatment program planning, health facility design, and daily interactions between clients and health workers must involve families.

Family-centered care recognizes that the people who are most skilled at performing child care all the time are their own parents, both in the hospital and at home. In family-centered care, information from the family is the main driving force behind the development of a childcare plan. Care management should facilitate fulfilling the needs of children and their families during the implementation of family-centered care. Interventions are directed toward respecting, supporting, and encouraging families' ability to participate in their child's care during illness and recovery (Lippincott Williams & Wilkins, 2015). The family is given the authority to be involved in the child's care. Families with experience, expertise, and competence have proven to provide positive benefits during child care. Giving authority to the family means paving the

way for the family to know their strengths and abilities, discover new skills, and increase the family's confidence in caring for children so as to reduce dependence on professional caregivers (Box 1.7).

The nurse provides full support to the family to be able to carry out the role of the family as a caregiver and decision-maker for every planned action procedure. Nurses should recognize the ability and expertise of parents to care for their children both during treatment and at home. In order for the FCC to run well, nurses need to consider and facilitate all the needs of family members during the implementation of pediatric care in the hospital (Box 1.5). This explains that the family is essential in caring for children, considering that children are part of the family.

Power to the people

Empowering and enabling parents are two important concepts in family-centered care. Empowering means engaging or engaging parents directly to maintain a child's health status or helping parents to develop their abilities in their child's care. Enabling refers to practices that assist family members in acquiring new skills necessary to meet their child's needs. Both of these concepts encourage teamwork between families and healthcare professionals to improve a child's health status, both physically and emotionally. Empowering and activating families in child care are two important concepts in family-centered care. Empowering means providing opportunities and involving parents directly in their child's care to maintain and improve their health status. Enabling a family means teaching members the new skills needed and developing those abilities to meet their child's healthcare needs. If these two concepts can run well, then the implementation of teamwork between nurses and families can be carried out optimally so that the child's health status can be improved both physically and emotionally (Box 1.6).

Core Concepts of Patient- and Family-Centered Care (Mc Lean, 2023)

1. Respect and dignity. As a pediatric nurse, respect and maintaining the dignity of patients can be demonstrated by providing opportunities and listening to nurses speak, respecting opinions, values, beliefs, cultural backgrounds, and decisions made by patient families. In preparing a nursing plan, nurses must consider these various aspects to achieve quality nursing care.

2. Information Sharing. Nurses and other practitioners provide information to children clearly, completely, and unbiasedly. The nurse considers the appropriate situation and conditions so that the family can receive information clearly and can actively participate during treatment.
3. Participation. Patients provide support and encouragement to children and families to make decisions that are best for the child's well-being. Patients also facilitate children and families to cooperate actively during treatment.
4. Collaboration. Nurses-children-families-other health practitioners collaborate during the assessment process. Interventions are structured and developed based on the data collected. Implementation and evaluation of policies and programs; design of facilities according to child-family needs; professional educational design; research design; and care delivery design.

Box 1.5 Key Elements of Family-Centered Care (Hockenberry et al., 2017)

- 1) Incorporating into policy and practice the recognition that the family is the constant in a child's life, whereas the service systems and support personnel within those systems fluctuate
- 2) Facilitating family-professional collaboration at all levels of hospital, home, and community care:
- 3) Care of an individual child
- 4) Program development, implementation, and evaluation
- 5) Exchange complete and transparent information between family members and professionals in terms of support in a supportive way at all times.
- 6) Incorporate understanding and respect for the cultural diversity, strengths, and individuality of each family, including ethnic, racial, spiritual, social, economic, educational, and geographical diversity, into a policy of practice.
- 7) Recognizing and respecting different methods of coping and implementing comprehensive policies and programs that provide developmental, educational, emotional, environmental, and financial support to meet the diverse needs of families
- 8) Encouraging and facilitating family-to-family support and networking
- 9) Ensuring that home, hospital, and community service and support systems for children needing specialized health and developmental care and their families are flexible, accessible, and comprehensive in responding to diverse family-identified needs
- 10) Appreciating families as families and children as children, recognizing that they possess a wide range of strengths, concerns, emotions, and aspirations beyond their need for specialized health and developmental services and support

From Shelton TL, Stepanek JS: *Family-centered care for children needing specialized health and developmental services*. Bethesda, MD, 1994, Association for the Care of Children's Health.

Box 1.6 The Benefits of Family-Centered Care (Hockenberry et al., 2017)

Family-centered care benefits the child and family and the health care professional.	
Family	Health care professionals
a) Increase self-confidence in their ability to care for their children	a) Improve the quality of nursing care
b) Lowers stress	b) Increase satisfaction with performance achievements
c) Decreased dependence on professional caregivers	c) Improve knowledge and skills and develop new skills in pediatric nursing
d) Increase family knowledge and skills in the care of their children	

Principle Family-Centered Care (Hockenberry et al., 2017)

- a) Respecting every child and family is the best choice in child care. Nurses, in carrying out nursing care for children, respect children and families as subjects of care.
- b) Nurses appreciate ethnic, cultural, social, economic, and religious and experience differences in healthy illnesses in children and families in nursing care.
- c) The services provided refer to the standard of nursing care and are treated equally to all patients and families.
- d) Recognize and strengthen the strengths that exist in children-families. Nurses need to develop the potential and advantages of the family to improve the quality of the nursing care process in children.
- e) Support and facilitate the choice of children and families in choosing health services that are appropriate for them and respect every decision as a form of nurse support to the family.
- f) Ensure the services obtained by children and families are in accordance with their needs, beliefs, values, and culture by monitoring nursing services.
- g) Sharing information honestly, truthfully, completely, accurately, and unbiasedly with children and families as a way to strengthen and utilize children and families in improving their health status.

- h) Provide and ensure formal and informal support for children and families. Facilitating the formation of support groups for children and families, assisting families, and providing access to support group information available in the community.
- i) Collaborate with children and families in preparing and developing childcare programs at various levels of health services. Involve families in planning child care programs, asking for family opinions and ideas for program development to be carried out.
- j) Encourage children and families to discover their strengths and strengths, build self-confidence, and make choices in determining children's health services. Health workers work to increase family self-confidence by providing families with the knowledge they need in childcare.

2). Atraumatic Care (Minimizing the Impact of Hospitalization)

Atraumatic care in the health care system provides nursing services by health workers with an intervention focus on minimizing or action without psychological and physical stress on the child and family. Atraumatic care consists of disease prevention, diagnosis, treatment, or palliation care in acute and chronic conditions, which can be done at home, in a hospital, or other health facilities. Anyone can participate in atraumatic treatment as long as the person participates in the implementation of therapeutic treatment. Therapeutic treatment can be carried out with psychological intervention and physical intervention. Psychological intervention can be done by preparing children to undergo action procedures, especially those previously unknown to the child. In addition, psychological intervention can also be done by fostering a relationship of trust between caregivers and children-parents, respecting children's privacy, and facilitating children to meet play needs during treatment. Through play activities in the hospital, children can express fear and aggression. One example of physical intervention is facilitating children to stay with their parents 24 hours a day during the hospital period. Atraumatic treatment aims to minimize psychological distress in children and parents, including feelings of anxiety, feelings of fear, feelings of anger, disappointment, feelings of sadness, feelings of shame, or feelings of guilt. Physical stress causes problems meeting the needs of sleep rest in children and parents, movement disorders, to sensory stimulation disorders such as pain, extreme temperatures, loud noises,

bright lights, or dark environments. Therefore atraumatic treatments are related to; who, why, where, and how a procedure is performed so that prevention or reduction of physical and psychological stress can be performed (Hockenberry et al., 2017). The main principle of atraumatic care is providing nursing care that does not risk causing harm to children and families.

Three principles can support the achievement of the main principles of atraumatic care, namely:

- a) Take care together, avoid or minimize the occurrence of separation between children and families.
- b) Promote a sense of control.
- c) Take preventive measures or reduce the risk of injury and pain to the body.

Therapeutic Relationship

Pediatric nurses must have good communication skills in order to be able to foster a therapeutic relationship when performing nursing services for children-families. Good communication skills become a strong foundation for achieving high-quality nursing care. Nurses must also be able to separate their feelings and needs, meaning that during nursing care, nurses must continue to do nursing care professionally and think logically to meet their basic needs as a person. The therapeutic relationship also allows well-defined boundaries to separate the nurse-child family but does not violate the caring principle. These boundaries are positive and professional and promote family control over their child's health care. The therapeutic relationship can enhance nurse-child-family empowerment to maintain open communication. (Hockenberry et al., 2017) In nontherapeutic relationships, there are no clear boundaries between the obligations of health care providers and the obligations of the caregivers as individuals. In carrying out daily actions, nurses often serve the personal needs of children-family, such as the need to feel wanted and involved. Until recently, it could not be stated that a particular action can form a therapeutic or nontherapeutic relationship. For example, when a nurse maintains communication and interacts with children outside of working hours. As long as the nurse can separate her actions as a professional nurse from her personal interests, it is a therapeutic relationship, and vice versa. If the nurse cannot maintain

professional separation, spends much time outside of work hours to go deeper into the child-family personal life, and ignores her needs personally, it can be called a nontherapeutic relationship.

General Approaches Toward Examining the Child

The Sequence of the Examination

In performing a physical exam, healthcare providers generally follow head-to-toe directions. The use of these systematic examinations provides easy guidance for healthcare providers. In addition, head-to-toe examination improves examination accuracy on all parts of the body and prevents incomplete patient data due to missed assessment. This documentation model makes it easier for various health practitioners to understand the results of assessments and for various health professionals to share information. In assessing children, head-to-toe examinations often cannot be done properly to prevent children from experiencing stress and boredom during the examination. Health providers will share techniques during data collection to accommodate children's needs according to their developmental level, but documentation will still use a head-to-toe model.

It is very important for a nurse to understand the child's developmental abilities based on age and chronology of the occurrence of health problems experienced by children today so that the following goals can be achieved:

- a) Avoid or minimize the occurrence of stress and anxiety in children during physical examination of body parts
- b) Fostering trusting relationships between nurses-children-parents
- c) Allow enough time for the child to prepare optimally before and during the examination
- d) Provide flexibility for children and families to be actively involved during the examination to provide a sense of security.
- e) Fosters confidence for children that caregivers respect their privacy.
- f) Find accurate and complete assessment data.

The cause of stress in children during hospital treatment is not only the result of painful actions but can also be caused by non-invasive physical examination procedures. Often nurses and other health providers forget that these various actions can cause stress and trauma to children,

including installing arm cuffs too tight, palpating the abdomen too deeply, installing probes in the ears or stretches, attaching cold metal to the chest when auscultating breathing sounds, and so on.

Guidelines for implementing nursing care appropriately and do not cause feelings of threat:

- a) The procedure room is designed with attractive colors with bright enough lighting
- b) Provide a room that is decorated according to the child's age and equipped with game tools according to the child's developmental ability.
- c) Facilitate families to stay comfortable while accompanying children in the hospital such as providing beds close to children, resting rooms, and facilities that allow children to interact actively with parents.
- d) Facilitate children to learn new things during treatment, such as learning new songs for children through audio or audio-visual facilities in the treatment room.
- e) Provide a warm and comfortable environment.
- f) Avoid and keep strange and frightening objects out of reach and sight of children that have the potential to cause feelings of fear and threat.
- g) Provide several fun game tools according to the child's developmental level, such as dolls, balls, picture books, picture story books, and so on.

Maintain privacy, especially for school-age children and teenagers.

- a) Facilitate children to play and interact with other children in the playroom.
- b) Encourage children and families to have the courage to communicate with nurses and other medical personnel, including communicating matters related to health problems and discomfort they feel.
- c) Nurses perform physical touch to child-family to increase familiarity and comfort.
- d) Encourage children to be able to cooperate and perform stages according to procedures; for example, children prefer to sit at the examination table rather than sit on the lap of their parents.
- e) Observe well the readiness of children before the procedure and prevent stress during and after the implementation of nursing care.

If the child seems unprepared, then the following can be done:

- a) Talking to parents while essentially “ignoring” the child; Gradually focus on your child or favorite object, such as a doll.
- b) Give comments or praise to children, for example giving praise to the children’s dolls, the color of children’s clothes, and so on.
- c) Do simple magic tricks, tell funny stories, and use hand puppets to convey information to the child.

If the child refuses to cooperate, use the following techniques:

- a) Examine past trauma experiences that underlie child-family uncooperative behavior
- b) Give a brief explanation with confidence, calm and straightforward explanations about the procedures, objectives, and benefits of care to be provided.
- c) Explain directly the extent of expected behavior and the role of the child-parent during the procedure.
- d) Provide a quiet room, communicate effectively, and conduct checks quickly.
- e) Involve children and families throughout the nursing care process.

How to involve the child in the examination process:

- a) If possible, give the child options such as sitting at a table or on the parent’s lap.
- b) Give a child the opportunity to touch or hold equipment.
- c) Encourage children to use the equipment on dolls, family members, or nurses.
- d) Explain each step of the procedure in simple language. Check the child is in a comfortable and safe position:
- e) Sit on a parent’s lap or sit upright if you have breathing problems.
- f) Examine the body head-to-toe unless changing it to accommodate the needs of children of different age levels. Do the last examination on the affected body part perform, except in emergencies.
- g) Prioritize examining vital functions (airway, breathing, and circulation) and injured areas to prevent more severe problems.
- h) Discuss with the family the examination results and praise the child for his cooperation during the examination; Give small gifts like stickers or tiny dolls.

Pain Assessment and Management in Children

The biggest and most often traumatic problem in children is pain. Every year, various interventions and evaluations have been carried out for acute and chronic pediatric pain management (Tobias, 2014a). However, inadequate pain management during procedures still traumatizes many children and adolescents. Over 25% of children experience pain during inpatient procedures (Kozlowski et al., 2014). Effective pain management in children requires a comprehensive assessment, pain intervention, and reassessment approach (Habich et al., 2012). Box 1.7 About Pain Rating Scales Using FLACC Scale. Box 1.9 summarizes several pain rating scales that can be used for children according to their age group and the pain response that the baby shows according to age (Box 1.8).

Pain is a common complaint patients express and the main reason for seeking medical help at the hospital. Adequate evaluation and control of postoperative pain effectively improve a child's comfort and quality of life. Postoperative pain that is not appropriately resolved impacts the slow recovery process and prolongs the hospitalization time. To control pain, nurses must measure the level of pain felt by children, but in reality, it is difficult to measure the level of pain felt by children because there is no single universal method that can be used to measure the level of pain in children in different age groups (Zieliński et al., 2020).

Box 1.7 Summary of Selected Behavioral Pain Assessment Scales for Young Children (Hockenberry et al., 2017)

Ages of Use	Reliability and Validity	Variables	Scoring Range
Two months old to 7 years old	Validity using analysis of variance for repeated measures to compare FLACC scores before and after analgesia; pre-analgesia FLACC scores were significantly higher than post-analgesia scores at 10, 30, and 60 minutes ($p < 0.001$ for each time) Correlation coefficients used to compare FLACC pain scores and OPS; a significant positive correlation between FLACC and OPS ($r = 0.80$; $p < 0.001$); positive correlation also found between FLACC scores and nurses' global ratings of pain ($r[47] = 0.41$; $p < 0.005$)	Face (0-2) Legs (0-2) Activity (0-2) Cry (0-2) Consolability (0-2)	0 = no pain; 10 = worst pain
FLACC SCALE			

FLACC	0	1	2
Face	No particular expression or smile	Occasional grimace or frown, withdrawn, disinterested	Frequent to constant frown, clenched jaw, quivering chin
Legs	Normal position or relaxed	Uneasy, restless, tense	Kicking, or legs were drawn up
Activity	Lying quietly in a normal position, he moves easily	Squirming, shifting back and forth, tense	Arched, rigid, or jerking
Cry	No cry (awake or asleep)	Moans or whimpers, the occasional complaint	Crying steadily, screams or sobs, frequent complaints
Consolability	Content, relaxed	Reassured by occasional touching, hugging, or talking to; distractible	Difficult to console or comfort

OPS, Observational pain scores.

From Merkel SI, Voepel-Lewis T, Shayevitz JR, et al.: The FLACC: a behavioral scale for scoring postoperative pain in young children, *Pediatric Nurse* 23(3):293–297, 1997. Used with permission of Jannetti Publications, Inc., and the University of Michigan Health System. It can be reproduced for clinical and research use.

Box 1.8 Children’s Responses to Pain at Various Ages
(Hockenberry et al., 2017)

<p>Newborn and Young Infants</p> <p>Crying loudly</p> <ul style="list-style-type: none"> • Changes in facial appearance (eyebrows lowered and pulled together, eyes tightly closed, and mouth open and square) • Limbs appear to experience stiffness, pulling reflexes, or struggling • Gives excessive response to the following action even if it does not cause pain (trauma) <p>Older Infant</p> <ul style="list-style-type: none"> • Crying loudly • Pulling body parts or showing stiffness in the area of the procedure • Express anger and pain • Showing physical rejection and staying away from Any procedure that is considered pain-causing <p>Young Child</p> <ul style="list-style-type: none"> • Crying loudly and screaming • Using verbal expressions, such as “Ouch,” “Ouch,” or “It hurts.”
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- Thrashing by moving arms and legs to combat pain
- Avoid any action that causes pain before the action is performed
- Shows rejection and refusal to cooperate; If rejected, need physical restraint
- Request that the procedure be stopped immediately
- Hugging parents, caregivers, or significant others to get comfort and emotional support during the act
- Irritability and anxiety during pain, as well as worrying about the next procedure being more painful

School-Age Child

Exhibit the behavior of young children, especially during painful procedures, compared to the behavior of young children before the procedure

- Procrastination in the execution of procedures, such as “Wait a minute” or “I’m not ready.”
- Displays muscle stiffness, such as fists, pallor on fingertips, gritted teeth, contracted limbs, body stiffness, closed eyes, wrinkled forehead

Adolescent

- Less physical and vocal rejection.
- More verbal expressions of his feelings, such as “It hurts” or “You hurt me.”
- Shows increased muscle tension and body control





Figure 1.2 Full, robust crying of a preterm infant after heel stick. (Courtesy of Halbouty Premature Nursery, Texas Children’s Hospital, Houston, TX; photo by Paul Vincent Kuntz.). (Hockenberry et al., 2017)





Figure 1.3 The face of pain after heel stick. Note eye squeeze, brow bulge, nasolabial furrow, and widespread mouth. (Courtesy of Halbouty Premature Nursery, Texas Children’s Hospital, Houston, TX; photo by Paul Vincent Kuntz.) (Hockenberry et al., 2017)

Box 1.9 Pain Rating Scales for Children (Hockenberry et al., 2017)

Pain Scale, Description	Instructions	Recommended Age, Comments
Wong-Baker FACES Pain Rating Scale*		
<p>It consists of six cartoon faces ranging from a smiling face for “no pain” to a tearful face for “worst pain.”</p>	<p>Original instructions: Explain to the child that each face is for someone who feels happy because there is no pain (hurt) or sad because there is much pain. FACE 0 is pleased because there is no hurt. FACE 1 hurts just a little bit. FACE 2 hurts a little more. FACE 3 hurts even more. FACE 4 hurts a whole lot, but FACE 5 hurts as much as you can imagine, although you don’t have to cry to feel this bad.</p> <p>Ask the child to choose the face that best describes their pain.</p> <p>Record number under chosen face on pain assessment record. Brief word instructions: Point to each face using the words to describe the pain intensity. Ask the child to choose the face that best describes their pain and record the appropriate number.</p>	<p>For children as young as three years old. Using original instructions without affecting words, such as happy, sad, or brief words, results in the same pain rating range, probably reflecting the child’s pain intensity rating. For coding purposes, numbers 0, 2, 4, 6, 8, and 10 can be substituted for the 0 to 5 system to accommodate the 0 to 10 system. The Wong-Baker FACES Pain Rating Scale provides three scales in one: facial expressions, numbers, and words. Research supports the cultural sensitivity of FACES for Caucasian, African American, Hispanic, Thai, Chinese, and Japanese children.</p>
 <p style="text-align: center;"> 0 No hurt 1 or 2 Hurts little bit 2 or 4 Hurts little more 3 or 6 Hurts even more 4 or 8 Hurts whole lot 5 or 10 Hurts worst </p>		
Word-Graphic Rating Scale † (Tesler et al., 1991)		
<p>Uses descriptive words (may vary in other scales) to denote varying intensities of</p>	<p>Explain to the child, “This is a line with words to describe how much pain you may have. This side of the line means no pain, and over here the line means worst possible pain.” (Point with your</p>	<p>For children from 4 to 17 years old.</p>

Pain Scale, Description	Instructions	Recommended Age, Comments
pain	<p>finger where “no pain” is, and run your finger along the line to “worst possible pain,” as you say it.) “If you have no pain, you will mark like this.” (Show example.) “If you have some pain, you would mark somewhere along the line, depending on how much pain you have.” (Show example.) “The more pain you have, the closer to worst pain you would mark. The worst pain possible is marked like this.” (Show example.) “Show me how much pain you have right now by marking with a straight, up-and-down line anywhere along the line to show how much pain you have right now.” With the millimeter rule, measure from the “no pain” end to mark and record this measurement as a pain score</p>	
		
<p>Numeric Scale</p>		
<p>Uses straight line with endpoints identified as “no pain,” “worst pain,” and sometimes “medium pain” in the middle; divisions along the lines marked in units from 0 to 10 (high number may vary)</p>	<p>Explain to the child that at one end of the line is 0, which means that person feels no pain (hurt). At the other end is usually a 5 or 10, which means the person feels the worst pain imaginable. The numbers 1 to 5 or 1 to 10 are for very little to a lot of pain. Ask the child to choose a number that best describes their pain.</p>	<p>For children as young as five years old, as long as they can count and have some concept of numbers and their values concerning other numbers. The scale may be used horizontally or vertically. Number coding should be the same as other scales used in the facility.</p>

Pain Scale, Description	Instructions	Recommended Age, Comments
		
Visual Analog Scale (VAS) (Cline et al., et al., 1992)		
<p>Defined as a vertical or horizontal line that is drawn to a certain length, such as 10 cm (4 inches), and anchored by items that represent extremes of the subjective phenomenon being measured, such as pain</p>	<p>Ask the child to place a mark on the line that best describes the amount of their pain. With a centimeter ruler, measure from the “no pain” end to the mark, and record this measurement as the pain score.</p>	<p>For children as 4 ½ young years old, preferably seven years old. Vertical or horizontal scales may be used. Research shows that children ages 3 to 18 prefer VAS less than other scales (Luffy & Grove, 2003; Wong & Baker, 1988).</p>
		
Oucher (Villarruel and Denyes, 1991)		
<p>It consists of six photographs of a white child’s face representing “no hurt” to “biggest hurt you could ever have;” it also includes a vertical scale with numbers from 0 to 100; scales for African-American and Hispanic children have</p>	<p>Numeric scale: Point to each section of the scale to explain variations in pain intensity: “0 means no hurt.” “This means little hurts” (pointing to the lower part of the scale, 1 to 29). “This means middle hurts” (pointing to the middle part of the scale, 30 to 69). “This means big hurts” (pointing to the upper part of the scale, 70 to 99). “100 means the biggest hurt you could ever have.”</p> <p>The score is the actual number stated by a child. <i>Photographic scale:</i></p>	<p>For children from 3 to 13 years old. Use a numeric scale if the child can count off any two numbers or by tens (Jordan-Marsh, Yoder, Hall, et al., 1994). Determine whether the child has the cognitive ability to use a photographic scale; the child should be able to rate six geometric shapes from largest to smallest. Determine which ethnic version of Oucher to use; allow the child to select a</p>

Pain Scale, Description	Instructions	Recommended Age, Comments
been developed.	<p>Point to each photograph and explain variations in pain intensity using the following language: First picture from the bottom is “no hurt,” second is “a little hurt,” third is “a little more hurt,” fourth is “even more hurt than that,” fifth is “pretty much or many hurts,” and sixth is “biggest hurt you could ever have.” Score pictures from 0 to 5; the bottom picture scored as 0.</p> <p><i>General:</i> Practice using Oucher by recalling and rating previous pain experiences (e.g., falling off a bike). The child points to several photographs describing the pain intensity associated with the experience. Obtain the current pain score from a child by asking, “How much hurt do you have right now?”</p>	<p>version of Oucher or use the version that most closely matches the child’s physical characteristics.</p> <p>Note: Ethnically similar scale may not be preferred by a child when given the choice of an ethnically neutral cartoon scale (Luffy & Grove, 2003)</p>

*Copyright 1983, Wong-Baker FACES Foundation, www.WongBakerFACES.org. Used with permission. Initially published in Whaley & Wong’s Nursing Care of Infants and Children. ©Elsevier Inc. † Instructions for Word-Graphic Rating Scale from Acute Pain Management Guideline Panel: Acute pain management in infants, children, and adolescents: operative and medical procedures; quick reference guide for clinicians, ACHPR Pub. No. 92-0020, Rockville, MD, 1992, Agency for Health Care Research and Quality, US Department of Health and Human Services. Word-Graphic Rating Scale is part of the Adolescent Pediatric Pain Tool. It is available from the Pediatric Pain Study, University of California, School of Nursing, Department of Family Health Care Nursing, San Francisco, CA 94143-0606; 415-476-4040. (Hockenberry et al., 2017)

3). Child Protection System in Indonesia (Damanik & Sitorus, 2019)

Child protection is all regulations, laws, legislation, and other activities aimed at protecting and guaranteeing children obtain all their rights during growth, development, and optimal participation opportunities to improve their dignity as human beings and get protection from all forms of violence and discrimination—study Box 1.10 as a description, guide, and definition to better understand the material.

Box 1.10 In this law, it is meant;

- a) The child is someone who is not yet 18 (eighteen) years old, including children who are still in the womb.
- b) Child protection is all activities to guarantee and protect children and their rights to live, grow, develop, and participate optimally following human dignity and dignity and get protection from violence and discrimination.
- c) The family is the smallest unit in society, consisting of husband and wife, husband and wife and child, father and child, mother and child, or blood family in a straight line up or down to the third degree.
- d) Parents are biological fathers and/or mothers, fathers and/or stepmothers, or adoptive fathers and/or mothers.
- e) A guardian is a person or entity who, in reality, exercises custody power as a Parent over a child.
- f) Abandoned Children are children whose needs are not met reasonably, whether physically, mentally, spiritually, or socially.
- g) Children with Disabilities are long-term physical, mental, intellectual, or sensory disabilities who, in interacting with their environment and community attitudes, may encounter barriers that make it difficult to participate fully and effectively based on equal rights.
- h) Children with excellence have extraordinary intelligence or remarkable potential and/or talents not limited to intellectual abilities but also in other fields.
- i) An adopted Child means a Child whose rights are transferred from the sphere of power of the Parents' Family, legal guardian, or other people responsible for the care, education, and upbringing of the child into the family of his adoptive parents based on a court decision or determination.
- j) A foster child is a child who is taken care of by a person or institution to be given guidance, maintenance, care, education, and health because his parents or one of his parents cannot guarantee the child's reasonable growth and development.
- k) Foster Power is the power of parents to nurture, educate, nurture, foster, protect, and develop children following the religion they profess and in accordance with their abilities, talents, and interests.
- l) Children's Rights are human rights that must be guaranteed, protected, and fulfilled by parents, families, communities, states, governments, and local governments.

- m) Communities are individuals, families, groups, and social organizations and/or community organizations.
- n) Companions are social workers who have professional competence in their fields.
- o) Special protection is a form of protection children receive in certain situations and conditions to guarantee security against threats that endanger themselves and their lives in their growth and development.
- p) Violence is any act against a child that results in physical, psychological, sexual, and/or neglectful misery or suffering, including threats to commit unlawful acts, coercion, or deprivation of liberty.
- q) Each person is an individual or corporation.
- r) The Central Government, hereinafter referred to as the government, is the President of the Republic of Indonesia who holds the power of the government of the Republic of Indonesia as referred to in the Constitution of the Republic of Indonesia Year 1945.
- s) Local governments are governors, regents, mayors, and regional officials as elements of government administration.”

This chapter discusses several articles in the Law of the Republic of Indonesia Number. 35 the Year 2014, Concerning Child Protection in several cases that occur in children in society.

- 1) Article 9 paragraph (1a) and Article 54: Every child has the right to protection in the education unit from sexual crimes and violence committed by educators, educators, fellow students, and/or other parties, as well as from physical and psychological violence.
- 2) Article 14: Protection for growth and development. This is related to protecting children’s growth and development under normal circumstances and in disaster situations. Indonesia is geographically prone to natural disasters, such as earthquakes, high waves, floods, forest fires, and volcanic eruptions. Children are entitled to protection in a disaster to meet their growth and development needs. One example of action related to this article is: facilitating children to carry out play activities at refugee sites, getting proper fulfillment of basic needs. For breastfeeding mothers, facilitate and provide support so that mothers continue to breastfeed their babies in refugee locations even in emergencies.

- 3) Article 15: Protection from abuse of political activity, social unrest, violent events, warfare, and sexual crimes. The article stresses that it is forbidden for adults to involve children in political interests, such as demonstrations, violence, social unrest, and sexual crimes. KPAI data (2022) found 536 cases of sexual crimes (child victims of sexual abuse). The protection of children against sexual crimes is regulated in the laws of the Republic of Indonesia number 12 of 2022 concerning Sexual Violence. This law can be studied further through the link [click here](#) (Republik Indonesia, 2022)
- 4) Article 26: Preventing child marriage. The Republic of Indonesia has provisions that regulate the age limit for child marriage. Article 7, paragraph (1) of Law of the Republic of Indonesia number 16 of 2019 concerning marriage states that marriage is only permitted if the man and woman have reached the age of 19 (nineteen) years. The Indonesian government's efforts to ban underage marriage have not achieved the desired results, as evidenced by the high rate of child marriage which reaches 10.35% (KPAI, 2022). Furthermore, the Law of the Republic of Indonesia number 16 of 2019 can be seen through the link [click here](#) (Republik Indonesia, 2019)
- 5) Article 45 A: Prohibition of abortion. This article is in line with Article 75 (1). Everyone is prohibited from having an abortion contained in the Law of the Republic of Indonesia Number 36 of 2009 concerning Health; more can be learned through the link [click here](#) (Republik Indonesia, 2009). Medical personnel who perform abortions will be dismissed as health workers, subject to criminal penalties and fines as juridical consequences for unlawful abortions.
- 6) Article 47: Protecting children from organ harvesting, health research that does not prioritize children's best interests. Organ harvesting is closely related to trafficking. Trafficking in Persons is an extraordinary crime involving men, women, and children. In contrast, legal proceedings against traffickers, witnesses, and victims received state protection according to Law No. 13/2006 on the Protection of Witnesses and Victims. Witnesses and victims have the right to request anonymity. More about this law can be studied through the file:///C:/Users/panir/Downloads/UU%20Nomor%2013%20Tahun%2

02006.pdf link. The crime of organ harvesting is regulated in the Law of the Republic of Indonesia Number 21 of 2007 concerning the Eradication of Trafficking in Persons; more details can be learned through the link [click here](#) (Republik Indonesia, 2007)

- 7) Article 64
 - a) Avoidance of imprisonment by the death penalty and/or life imprisonment
 - b) Avoidance of publication of his identity
 - c) Provision of education and health services

In order to provide legal protection for children, the Indonesian Child Protection Commission (KPAI) disseminates all provisions of laws and regulations related to child protection, collects data and information, receives public complaints, conducts review, monitoring, evaluation, and supervision of the implementation of child welfare in accordance with Article 3 of the Presidential Regulation of the Republic of Indonesia number 61 of 2016. More details can be seen via the link [click here](#) (Peraturan Presiden, 2016)

In Law of the Republic of Indonesia Number 11 of 2012 concerning the Juvenile Criminal Justice System article 3 (f). the child is not sentenced to death or life imprisonment; and (g). the child is not arrested, detained, or imprisoned, except as a last resort and for the shortest time; it is part of child protection. Law of the Republic of Indonesia on the Juvenile Criminal Justice System More can be learned by [clicking here](#) (Republik Indonesia, 2012a)
- 8) Article 72 point 3 (f): Provide facilities and infrastructure and create a conducive atmosphere for children's growth and development; Related to this article, children are entitled to facilities to play in order to meet their development needs through early childhood education and higher education levels according to the child's age.
- 9) Article 73, point 6 (b): Products intended for children must be safe for children; In connection with this article, children get protection for products, especially staple foods, food additives, and game tools that are safe for children. Therefore, the Food and Drug Control Center conducts tracking and inspection of the quality of snack products circulating in the community to be safe from harmful

chemicals. Family participation is vital to supervise the types of food and snacks consumed by children and toys used by children every day. Parents should be wary of some over-the-counter gaming tools that can cause injury to the child, such as strangulation, burns, or poisoning. Regulations regarding snack safety are regulated in Article 65 of Law of the Republic of Indonesia Number 18 of 2012 concerning Food; more details can be learned through the link [click here](#) (Republik Indonesia, 2012b)

The articles in Law of the Republic of Indonesia Number 35 of 2014, in total, can be seen through the website [click here](#) (Republik Indonesia, 2014)

4). Role of Pediatric Nurse

Pediatric nurses are responsible for improving the health and well-being of child families. Each nurse has different duties and responsibilities according to regional job structure, education, individual experience, personal goals, and children with different backgrounds. Each nurse has an individual set of variables that can affect nurse-child-family interactions. Wherever and whenever pediatric nurses perform nursing care, the main principle is to improve the welfare of children and families. The nurse is one of the health team members who work and is responsible for improving the health and well-being of the child and family. Each child and family has unique and different experiences and backgrounds. Therefore, pediatric nurses must be experts in establishing communication and fostering trusting relationships between children-child caregivers-families. Nurses must be able to play a role in various aspects, significantly improving the welfare of children and families. There are several roles for nurses, including:

a) The Role of Therapeutic Relationship

Quality nursing care can only be achieved if a good therapeutic relationship is established with the child and family. Therapeutic relationships become the foundation of nurses in providing high-quality nursing care. Good relationships with children and parents provide ample opportunities for caregivers to empower families and communicate openly. Nurses must be able to separate therapeutic or nontherapeutic relationships to avoid early problems with children and families. Some

questions can help determine the nurse's relationship quality in carrying out nursing care (Box 1.12).

b) The Role of Educators

Nurses act as educators either directly by providing counseling or health education to parents or indirectly by helping parents and children understand the treatment and care children undergo. Parents' needs for health education can include a basic understanding of their child's illness, child care during hospitalization, and further care to prepare for returning home. Nurses can change three domains through health education: knowledge, attitudes, and family skills in understanding health, especially the care of sick children.

c) Support and Counseling

Different needs and availability of resources in each family allow some families to need emotional support and even counseling from nurses. The role of nurses as support and counseling providers is an individual approach. Support can be provided by listening, touching, and being physically present. This is part of nonverbal communication that can help children and families find the right ideas and reasons for problem-solving. Nurses facilitate children and families, provide support, provide teaching, and express thoughts and feelings in managing problems to cope with stress. Furthermore, counseling is not limited to helping children, and families overcome crises and problems. It is also possible for families to be more productive, create confidence in their ability to anticipate and solve every problem and improve harmonious relationships.

d) Coordination or Collaboration Roles

The role of nurses as coordinators and collaborators is carried out through an interdisciplinary approach. Nurses collaborate with other health team members to implement holistic and comprehensive care. Nurses are vital to being health care coordinators because they are 24 hours next to patients. The family is a nurse's partner. Therefore, cooperation with the family must also be well fostered when the nurse needs information from the family, and the entire series of childcare processes must involve the family actively.

e) Disease Prevention and Health Promotion

Disease prevention and health promotion efforts are significant for every nurse to know, and nurses must be involved in this. A nurse can do her best to prevent the onset of illness through Health Education activities and anticipatory guidance. It is crucial to conduct a comprehensive assessment of child growth and development aspects, including nutritional adequacy, completeness of immunization, safety, oral hygiene routines, and so on, so that problems can be identified early. Intervention directly or by referring the child to health services can be done early to address the problems found and anticipate the emergence of more severe health problems.

There is a risk of danger and conflict in children in every period of growth and development, so nurses need to provide guidance and care for parents to prevent potential problems in children. As one example, guiding parents to maintain the safety of children by preventing falls, accidents, electric shocks, and so on that can cause permanent disability and death.

f) Family Advocacy and Caring

Nurses have primary responsibility for consumers of nursing services and their responsibilities to themselves, the profession, and the institution of work. Identification of needs, goals, and actions is carried out by nurses together with families in solving problems. Nurses, as advocates, are responsible for helping children and families make decisions that are best for children. The nurse provides clear information and ensures that the family is aware of all available health services and information about care procedures, involves the family directly in child care, and educates the family to be caring and able to support nursing practice. High care and compassion will realize the therapeutic relationship and atraumatic care to achieve quality nursing care. Nurses must be able to appreciate the presence of the family by listening, asking for opinions, involving the family in decision-making, showing affection and sensitivity to children and families, and creating a sense of comfort while in the hospital environment.

g) Role as an Ethical Decision Maker

Nurses must be able to act as ethical decision-makers based on values and norms that emphasize that ethical decisions facilitate patients to obtain autonomy rights, improve patient welfare and avoid things that harm patients and families. Nurses should be involved in formulating health care plans at the policy level, have a voice to be heard by policymakers, and be active in movements aimed at improving child well-being. It is important to emphasize that nurses are practical implementers in health services who have the longest interaction time with children and families and understand the condition of child health development thoroughly during child care. As ethical decision-makers, nurses must be able to convince policyholders that the proposed nursing service planning can impact improving the quality of children's health services. Ethical dilemmas can arise in ethical decision-making due to different moral considerations between nurse-parent-doctor and other care team members. The difference in each moral value is based on considerations of autonomy, the personal desires of the patient; nonmaleficence, the patient's obligations while in the hospital; beneficence, the obligation to improve patient welfare; and justice. Consideration of differences in moral values should be set aside if they do not support the goals of nursing practice.

The decision must be beneficial and not harmful to the patient and not injure customs, standards of professional nursing practice, laws, hospital rules, family systems, values, religion, and values that the nurse personally believes. To carry out this role, nurses need to prepare themselves to be able to make collaborative, ethical decisions through higher education, extensive knowledge, and experience in building a conducive environment. The professional code of ethics is one of the bases for nurses in making professional decisions in dealing with ethical issues, for example, the use of live-saving newborn care with VLBW, families who refuse and ask to stop caring for their seriously ill children, and many other ethical dilemmas faced. Nurses struggle to find answers and truth to every decision that contains ethical dilemmas. Various ethical arguments become the basis and experience for nurses in clarifying their values when dealing with future ethical dilemmas and sensitive issues.

h) The Role of the Researcher

Nurses, as researchers, need full involvement in finding problems during the child's health care process. The problems must be examined directly to find problem-solving strategies so that the quality of nursing practice/care in children can continue improving. To be able to perform the role of a researcher, critical thinking skills are needed to see the phenomena that exist in daily child nursing care services. During the research process, the data obtained can be compared with the results of the same research conducted by nurses through literature studies to validate the research problems found. At a certain level of qualification, nurses must be able to conduct research to improve the quality of pediatric nursing practice.

Box 1.12 Nursing Care Guidelines

Exploring your relationships with children and patients' families to foster therapeutic relationships with children and families, you must first become aware of your caregiving style, including how effectively you take care of yourself. The following questions should help you understand the therapeutic quality of your professional relationships.

Negative Actions

- Are you overinvolved with children and their families?
- Do you work overtime to care for the family?
- Do you spend off-duty time with children and patients' families in or out of the hospital?
- Do you frequently call (either the hospital or home) to see how the children and patients' families are doing?
- Do you show favoritism toward certain patients?
- Do you buy clothes, toys, food, or other items for the child and family?
- Do you compete with other staff members for the affection of specific children and patients' families?
- Do other staff members comment about your closeness to the patient's family?
- Do you attempt to influence patients' families' decisions rather than facilitate their informed decision-making?
- Are you under-involved with children and patients' families?
- Do you restrict parent or visitor access to children, using excuses such as the unit is too busy?
- Do you focus on the technical aspects of care and lose sight of the person

who is the patient?

- Are you overinvolved with children and underinvolved with their parents?
- Do you become critical when parents do not visit their children?
- Do you compete with parents for their children's affection?

Positive Actions

- Do you strive to empower patients' families?
- Do you explore families' strengths and needs to increase family involvement?
- Have you developed teaching skills to instruct families rather than doing everything for them?
- Do you work with families to find ways to decrease their dependence on healthcare providers?
- Can you separate families' needs from your own needs?
- Do you strive to empower yourself?
- Are you aware of your emotional responses to different people and situations?
- Do you have a calming influence, not one that will amplify emotionality?
- Have you developed interpersonal skills in addition to technical skills?
- Have you learned about ethnic and religious family patterns?
- Do you communicate directly with persons you are upset or take issue with?
- Are you able to "step back" and withdraw emotionally but still interact physically when your emotions are heightened and remain committed to performing tasks as they should?
- Do you take care of yourself and your needs?
- Do you periodically interview family members to determine their current issues (e.g., feelings, attitudes, responses, wishes), communicate these findings to peers, and update records?
- Do you avoid relying on initial interview data, assumptions, or gossip regarding families?
- Do you ask questions if families are not participating in care?
- Do you assess patients' families for feelings of anxiety, fear, intimidation, worry about making a mistake, a perceived lack of competence to care for their child, or fear of health care professionals overstepping their boundaries into a family territory, or vice versa?
- Do you explore these issues with family members and provide encouragement and support to enable families to help themselves?
- Do you open communication channels among yourself, family, physicians, and other care providers?
- Do you resolve conflicts and misunderstandings directly with those who are involved?
- Do you clarify information for patients' families or seek the appropriate person?

- Do you recognize that from time to time, a therapeutic relationship can change to a social or intimate friendship?
- Can you acknowledge the fact when it occurs and understand why it happened?
- Can you ensure that there is someone else who is more objective and can take your place in the therapeutic relationship?

If the answer to negative actions tends to be “Yes,” it means that you are less likely to be able to separate the therapeutic and nontherapeutic relationship, similarly if the answer to positive actions is a majority of “Yes,” it means that you tend to have a therapeutic relationship with the child and patient’s family.

SUMMARY

Children are very different from adults, physiologically and psychologically; therefore, in implementing child nursing care, nurses must understand the characteristics of children appropriately. To meet the challenges of children’s needs, child nursing must respond positively to these needs. Many advances have been made in pediatric nursing, including the separation of adult nursing care facilities from pediatric unit care, so that nurses and other professional nursing care staff can provide therapy based on the individual needs of their respective patients. In addition to improving better child health service facilities and increasing professional nurses in child nursing, children’s lives are largely determined by the family environment. A child’s life and health are affected by daily family support. This can be seen if family support is excellent, then the child’s growth and development are relatively stable, but if the support for children is not good, then the child will experience obstacles to himself that can interfere with the child’s physical and psychological health. In the implementation of child nursing care, it must involve the family, known as the concept of family-centered care (FCC). Parents are believed to be the most appropriate and best people to provide care to children in health and illness. The presence of children in the middle of the family is vital in caring for healthy children and when children are sick. Families with sick children at home demand the family itself to provide optimal care for the child; this can also increase the child’s comfort and reduce hospitalization stress. In recent decades, nursing has also focused on providing nursing care without causing trauma (atraumatic care) and fulfilling other children’s rights stipulated in the law. The overall needs of this child are in line with the role that each

nurse has. Implementing the role of nurses professionally can improve the quality of child nursing care. Nurses must carry out their professional roles well because, throughout the healthy-sick range, children need nurse assistance directly and indirectly so that their growth and development can run well.

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REVIEW QUESTIONS

1. Philosophy is the belief held by nurses in providing nursing services to children. The nursing paradigm is the basis of thinking for nurses in applying nursing science. Which of the following is not part of the philosophy of child nursing?
 - A. Human beings, in this case, children
 - B. Health
 - C. Nursing
 - D. Healthy-sick
 - E. Milieu
2. A nurse is obliged to provide information and education about newborn health services carried out no later than 24 hours after birth. What must be done by nurses according to the functions mentioned above?
 - A. Newborn care
 - B. Exclusive breastfeeding
 - C. Danger signs in newborns
 - D. Health services for newborns and Newborn screening.
 - E. All true
3. To achieve quality child nursing care, parents and families must participate in child care, this concept is known as family-centered care (FCC). In the implementation of the FCC, there are core concepts, which of the following are not part of the FCC core concepts?

- A. Respect and dignity
 - B. Information sharing
 - C. Room arrangement
 - D. Participation.
 - E. Collaboration.
4. A professional pediatric nurse must have therapeutic relationship skills to avoid problems in the future. Which of the following statements describes the therapeutic implementation of the nurse-child-family relationship?
- A. "For me, caring for children means paying attention to and meeting the needs of children without being limited by time and place like accompanying children to spend their vacation time."
 - B. "Caring for a child throughout the day is part of my duties and responsibilities as a nurse, including her need for attention and affection like a brother."
 - C. "I can freely share my personal life with my parents to show that there are no secrets between us."
 - D. "I am involved in decision-making on issues faced by children and listen to family concerns."
 - E. "I perform my duties and responsibilities and remain attentive to my needs personally."
5. Which of the following is the purpose of atraumatic care?
- A. Avoiding separation between children and parents
 - B. Avoiding harmful actions
 - C. Improve children's and family's self-control skills
 - D. Prevent and minimize pain and injury to the body
 - E. Perform nursing actions professionally
6. The principle of child nursing holds that children are not miniature adults. Choose the various statements below that are in accordance with the concept above.
- A. Children can describe what they feel through facial expressions
 - B. Parents provide opportunities for nurses to communicate directly with children
 - C. Parents understand everything precisely as perceived by the child because parents are always there with the child

- D. Children feel upset when they don't get the opportunity to express what they feel directly
 - E. Children feel neglected When nurses only involve parents during the assessment process
7. Deferment of vitamin K administration after 1-hour postpartum aims to
- A. Give the baby and mother a chance to make eye contact in the first 1 hour after the baby's birth.
 - B. Conduct an assessment and observation of eye health problems as early as possible.
 - C. Prepare various other baby needs and delay the administration of vitamin K after 1 hour of birth.
 - D. This is the most effective time for vitamin K administration
 - E. Prepare nurses to determine the appropriate type of vitamin K for infants.
8. One of the standards of care for pediatric nursing is to perform congenital hypothyroid screening by taking blood as much as 2-3 drops from the newborn's heel. What is the primary purpose of the action?
- A. To improve the degree of health of newborns
 - B. To do a general check-up for the baby's health
 - C. To find cases and prevent disability, growth disorders, and mental and cognitive retardation due to hypothyroidism.
 - D. To network congenital hypothyroid cases in newborns so that treatment can be done after the baby is one-month-old
 - E. To fulfill the achievements of the performance plan of the Ministry of Health to improve the degree of health and welfare of children.
9. To achieve quality nursing care, a professional nurse must understand children's developmental abilities and the chronology of current health problems have achieved. Which nursing implementation is most appropriate for nurses related to the above?
- A. Avoid or minimize stress and anxiety in children and foster trusting relationships between nurse-children-parents
 - B. Allow enough time for the child to prepare optimally before and during the examination

- C. Provide flexibility for children and families to be actively involved during the examination to provide a sense of security.
- D. Fostering confidence for children that caregivers respect their privacy.
- E. All points above are correct

10. A nurse makes efforts to prevent the onset of disease by conducting a comprehensive assessment of aspects of child growth and development, including nutritional adequacy, completeness of immunizations, safety, oral hygiene routines, and so on so that problems can be identified early. Direct early intervention can be done by referring children to health services to anticipate the emergence of more severe health problems. Based on the description above, which nurse role is performed by the nurse?

- A. Coordination or collaboration roles
- B. The role of educators
- C. Support and Counseling
- D. Disease Prevention and Health Promotion
- E. The Role of Therapeutic Relationship



CHAPTER 2

TREND AND ISSUE IN CHILDREN

INTRODUCTION

Today, there are many problems in children arising from families, neighborhoods and schools, communities, or limitations/disabilities due to genetic factors that impact children's growth and development. Nursing as a profession is required to understand the factors that can inhibit the growth and development of children to minimize the negative impact on children's productivity in the future. To positively impact child development, nurses must be sensitive to the development of trends and issues that develop in society. Today, trends and issues have a negative impact and pressure on children, both in the family environment, such as divorce cases, domestic violence, poverty, and so on, as well as cases that develop in society, including technological developments. Trends and issues related to the rapid development of technology are the use of gadgets in minors with a frequency and duration of use that exceeds the requirement. The use of poorly controlled technology can damage children as the next generation of the nation. The above will be the subject of this chapter.

KEY TERMS

1. Child Protection
2. Parenting
3. Divorce

LEARNING OBJECTIVES

After studying this chapter, students are expected to be able to:

1. Explain the trend and issuing children
2. Explain the problems that occur in children today

3. Explain the factors that cause problems in children
4. Explain the impact of trends and issues on children

A. Trend and Issue

This material conveys positive trends, issues, and challenges that still affect the lives of around 80 million Indonesian children. At the global level, Indonesia's leadership and success in improving the quality of life of children and women has been recognized. Indonesia has the potential to improve children's lives through policies and investments to address today's challenges in a fair, equitable, and prosperous manner for all Indonesian children. Four national priority policies to ensure child protection, namely: 1) increasing the role of mothers and families in education/childcare; 2) a decrease in violence against children; 3) a decrease in child labor; 4) a decline in child marriage. Current challenges are mainly experienced by women and rural populations leading to child poverty; significant disparities in clean water and sanitation, which contribute to neonatal mortality, high incidence of child illness; and high stunting rates, which negatively impact children's physical and cognitive growth throughout life (UNICEF, 2020).

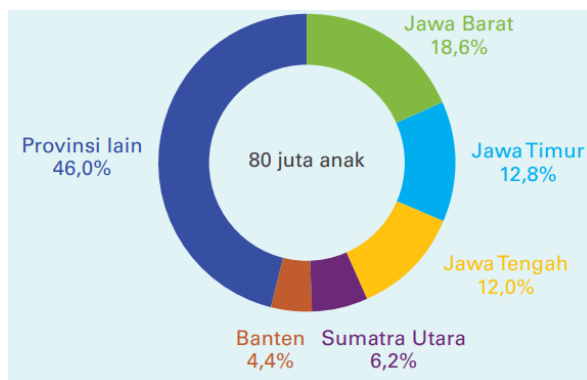


Figure 2.1 The five provinces have the highest child population in Indonesia. (BPS 2018)

One-third of Indonesia's population consists of children; there are around 80 million children in Indonesia. Indonesia's child population holds the fourth largest number in the world. Some children live in big cities like Jakarta. Urban poverty and pollution are challenges faced by children in

urban areas, while children in remote rural areas have difficulty accessing essential daily health services (UNICEF, 2020).

Geographically, Indonesia is vulnerable to natural disasters, such as earthquakes, high waves, floods, forest fires, and volcanic eruptions that significantly impact children, climate change, and ecological degradation. Rapid urbanization means two-thirds of Indonesia's population will live in cities by 2030, significantly impacting children (UNICEF, 2020).

BPS, (2021) shows that Indonesia's children's dropout rate increased in 2021 to 75,303 due to a family's economic capacity decline due to the pandemic, so many children dropped out of school or could not continue their studies (Halid, 2022). UNICEF, (2022), since the pandemic in early 2020, more than two years children in Indonesia have experienced a decline in the quality of education. On the other hand, the pandemic condition since early 2020 has provided more time for children and families to spend together at home, improving the quality of care for Indonesian children. The current state of child welfare is an important Sustainable Development Goal (SDG) by 2030. There are 17 targets and policies of Indonesia's SDGs in 2030, namely no poverty, no hunger, healthy and prosperous life, quality education, gender equality, clean water and proper sanitation, clean and affordable energy, decent work and economic growth, industry-innovation and infrastructure, reduced inequality, sustainable cities and settlements, responsible consumption and production, climate change management, ocean ecosystems, terrestrial ecosystems, peace-justice and resilient institutions, partnerships for goal achievement. The seventeen SDFs targets and policies aim to improve the welfare of children and families as Indonesian citizens (Republik Indonesia, 2021)

Child Protection Issues in Indonesia

Poverty is the inability to meet a certain standard of living based on minimum expenditure or income in meeting calorie needs and non-food expenditures to live correctly. The poverty line reflects the rupiah value of the minimum expenditure needed for a person to meet the basic needs of life for a month, both food and non-food needs. Further material can be studied by [Click here](#) (BPS, 2022)

There was an increase of 0.41% in children living below the poverty line from 12.23 percent in 2020 to 12.64 percent in 2021. The leading cause of poverty is declining economic productivity nationally and

globally, affecting family life, including children (Riany & Morawska, 2023). Most of the poverty in Papua is due to mountainous areas that are difficult to access, so they are vulnerable to access to education and health. Poverty causes low purchasing power in the community, so achieving the fulfillment of children's rights to live a prosperous life is low. The poverty rate in Papua has increased by 3.06% from September 2020 by 26.80% to 26.86% in March 2021 (BPS, 2021).

Poverty is the cause of almost all challenges faced by children in Indonesia which result in health problems, low school opportunities, threats to security, vulnerable to violence and exposure to harmful pollutants, and so on (UNICEF, 2020). (KPAI, 2021) shows that the number of cases of violations of children's rights is quite fluctuating; namely, in 2019, there were 4,369 cases; in 2020, there were 6,519; and in 2021, there were 5,953 cases with details of 2,971 cases of fulfilling children's rights and 2,982 cases of special child protection. Exist 492 children were victims of restrictions on access to meet parents, 432 children were victims of problematic care/parent/family conflicts, 408 children were victims of the fulfillment of the right to provide for themselves, 38 children were victims of problematic care, and 306 children were victims of custody struggles. The rate of child marriage in Indonesia reached 10.35. KPAI (2021) states that there are still high cases of physical or psychological violence against children, cases of children becoming victims of sexual crimes, victims of pornography and cybercrime, victims of mistreatment and neglect, economic and/or sexual exploitation of children, and children facing the law. The highest number of cases recorded were physical and psychological violence, with 1089 cases, followed by sexual crimes (victims of sexual abuse), with 536 cases.

1) Poverty and Young Marriage

The child marriage rate in 2021 was 10.35%, and in 2022 it was 9.23%. Despite the decline in the rate of child marriage, Indonesia still ranks eighth highest in the world in child marriage cases. The causes of children dropping out of school are child marriage, working children, violence, and other social problems (UNICEF, 2022). Indonesia occupies an equal position with several countries in South Asia and Africa, with the most cases of child marriage worldwide (Republik Indonesia, 2020). UNICEF, UNFPA, (2020) said that poverty is the main cause that encourages early marriage in developing countries such as Indonesia. In some areas with

high poverty rates, releasing their daughters for marriage is considered to reduce the economic burden on their families. In 2018, 1 in 9 girls were married in Indonesia. Women aged 20-24 years who were married before the age of 18 in 2018 are estimated to reach around 1,220,900, and this figure places Indonesia in the ten countries with the highest absolute rate of child marriage in the world. ¹Analysis of child marriage data looked at women aged 20-24 years who were married before they were 15 and 18 years old (UNICEF, BPS and Bappenas, 2017)

In Indonesia, there are more than one million women aged 20-24 years whose first marriage occurred at the age of less than 18 years (1.2 million people), while women aged 20-24 years who had their first marriage before the age of 15 years were recorded as many as 61.3 thousand women (Dewi & Dartanto, 2018). Throughout 2018, the prevalence of women 20-24 years old in rural areas whose first marriage before age 18 was still higher than in urban areas. The percentage of child marriage in rural areas is 16.87 percent, while in urban areas, it is only 7.15 percent.

When viewed from the level of welfare, women aged 20-24 years who come from households with the lowest level of welfare tend to have a greater chance of marrying under 18 years (UNICEF, BPS and Bappenas, 2017). Susenas (2017) stated that the percentage of women aged 20-24 years who married before the age of 18 years and had their first pregnancy age before the age of 18 years was 63.08 percent, namely: as many as 1.95 percent who were under 15 years old for the first time pregnant, 4.70 percent were pregnant for the first time at 15 years old, amounted to 17.53 percent were pregnant for the first time at 16 years, and 38.90 percent of first pregnancies were 17 years old. Women aged 20-24 years who married before the age of 15 and during their first pregnancy also before the age of 15 years there were 46.84 percent or almost half. The first pregnancy is still at the age of a fairly large child, which is 77.96 percent which means 3 out of 4 women aged 20-24 years who marry before the age of 15 years get pregnant when they are still classified as children (<18 years). BPS (2022), the percentage of women aged 20-24 years who were married before 18 was 10.35% in 2020 and 9.23% in 2021. The literature study also found that the risk of girls being married off is higher in situations after natural disasters. Dewi & Dartanto mentioned that child marriage is getting higher in Indonesia, India, and Sri Lanka because they are forced to marry widowers after the tsunami

(Dewi & Dartanto, 2018). This is a note for stakeholders to pay more attention to preventing child marriage in disaster situations.

2) Special Parenting Situations

Parenting is one of the basic duties of parents. To take good care of children, ideal conditions are needed, meaning that children get care from both parents and are raised in a harmonious situation. Parenting in situations and environments that deviate from the “norm” impacts increasing larger problems in the family. The most frequent deviant situations in families are divorce, single parents, children living in blended families, adoption, and families with dual careers. In addition, the high population shift due to increasingly open access to communication and followed by an increasing migration process from one country to another, causes an increase in cultural diversity in a community. The entry of a new culture into a community through marriage will lead to cultural diversity. This diversity includes customs and habits, languages, parenting patterns, and so on, which create new challenges in parenting. Drug addiction, and alcoholism in the elderly, homelessness, and incarceration, low economic ability are also other factors that impact the quality of childcare (Hockenberry et al., 2017).

a) Parenting and Divorce

Conflict in marriage is the beginning of the divorce process. Conflicts that occur vary, usually because of prolonged conflicts, lasting for a long time with frequent frequency. Prolonged conflict in marriage is generally the beginning of divorce proceedings. The primary function of parenthood is to provide security and emotional well-being for their children; divorce often elicits strong feelings of guilt in divorced parents. Based on data from the (BPS, 2022), the number of divorce cases in Indonesia reached 447,743 cases in 2021 and increased to 516,334 cases in 2022; this figure is the highest number in the last six years. In 2022, divorce cases filed by wives and decided by the court amounted to 388,358 cases or 75.21 percent of the total divorce cases and divorce applications made by husbands and have been decided by the court as many as 127,986 cases or 24.78 percent. The main cause of divorce is disputes and quarrels between husband and wife, reaching 284,169 cases or equivalent to 63.41 percent of the total factors causing divorce cases in the country, and the second most common cause is economic factors, which is as

many as 110,939 cases (24.75 percent). How many children are affected by divorce is not known with certainty? In Indonesia, the percentage of children aged 0-17 years who do not live with both parents is 4.67 percent in 2020 and 3.75 percent in 2021 (BPS, 2022).

Telling the Children

Parents should inform children about the divorce decision, although explaining it is difficult, especially in young children such as preschool age, to avoid uncomfortable feelings. If possible, discussions are held with parents, then with siblings, and then conveyed to children. The extended family must also provide support to children so that children can understand the parents' choice to divorce. Discussions should be conducted calmly with sufficient time without tension and quarrels. Parents should not be afraid to cry in front of children because their crying also gives children permission to cry. Crying is one way for parents and children to vent their feelings. Usually, children feel very angry and upset; they should be allowed to communicate all their feelings freely without being punished. Children may feel guilty, scared, abandoned, like a failure and unloved, or deserve punishment for their bad behavior. Children feel scared; they want to know what happens after divorce, such as; Where they will live, who will take care of them, whether they will be with their siblings, and whether there will be enough money to live. Children fear that if their parents stop loving each other, they could stop loving them. Their need for love and reassurance is great (Hockenberry et al., 2017). The phases experienced by the family, from deciding on divorce to forming a new family after divorce, can be seen in box 2.1.

Box 2.1 The Divorce Process

Acute Phase

- The married couple decides to separate.
- This phase includes the legal steps of filing for dissolution of the marriage and, usually, the father's departure from the home.
- This phase lasts several months to more than a year and is accompanied by familial stress and a chaotic atmosphere.

Transitional Phase

- The adults and children assume unfamiliar roles and relationships within a new family structure.
- This phase is often accompanied by a change of residence, a reduced

standard of living and altered lifestyle, a larger share of the economic responsibility being shouldered by the mother, and radically altered parent-child relationships.

Stabilizing Phase

- The post-divorce family reestablishes a stable, functioning family unit.
- Remarriage frequently occurs with concomitant changes in all areas of family life.

Modified from Wallerstein JS: Children of divorce: stress and developmental tasks. In Garnezy N, Rutter M, editors: *Stress, coping, and development in children*, New York, 1988, McGraw-Hill. (Hockenberry et al., 2017)

During and after the divorce, parents will be busy managing their hearts and feelings of loss and anger, trying to meet the child's needs and thus often neglecting the child. The child does not get enough support from their parents because the parents have to find a job (which usually happens to the mother). Children will be entrusted to people who have not been known before, and life changes so drastically. Older people who feel lonely without a partner may also spend more time outdoors looking for a new partner. Changes in family structure due to divorce often leave a pent-up sense of helplessness and anger, so parents and children quickly have volatile emotions and are very irritable.

b) Impact of Divorce on Children

Children who experience parental divorce in childhood experience more conflicts and difficulties that contribute to the poor mental formation, especially when combined with child abuse. Divorce has a tremendous emotional impact even though divorce is peaceful and open. Divorce causes deep trauma and frightening emotions, just like the trauma felt by victims of natural disasters. The trauma of parental separation leads to grief, loss, and vulnerability to environmental forces beyond their control. Factors affecting the severity of the impact of divorce on children, i.e., the age and sex of the children, the outcome of the divorce, the quality of the parent-child relationship, and the nurturing the child receives during the years after the divorce. Divorce is a major nuisance for children at all age levels and different genders, constituting the second greatest stress after the death of a parent. Children experience great embarrassment when parent divorce, so they tend to behave differently from children their age. Children feel inferior, have a negative self-image, are unworthy of love, and feel useless, especially if they feel responsible for their parent's

divorce. In addition to adverse effects, divorce can improve the quality of life of the family if the family can resolve conflicts well and create positive things in the future (Hockenberry et al., 2017). Box 2.2 describe children's feelings and behaviors resulting from their parent's divorce based on age.

Box 2.2 Feelings and Behaviors of Children Related to Divorce

Infancy

- Effects of reduced mothering or lack of mothering
- Increased irritability
- Disturbance in eating, sleeping, and elimination
- Interference with the attachment process

Early Preschool Children (2 to 3 Years Old)

- Frightened and confused
- Blame themselves for the divorce
- Fear of abandonment
- Increased irritability, whining, and tantrums
- Regressive behaviors (e.g., thumb sucking, loss of elimination control)
- Separation anxiety

Later Preschool Children (3 to 5 Years Old)

- Fear of abandonment
- Blame themselves for the divorce; decreased self-esteem
- Bewilderment regarding all human relationships
- Become more aggressive in relationships with others (e.g., siblings, peers)
- Engage in fantasy to seek an understanding of the divorce

Early School–Age Children (5 to 6 Years Old)

- Depression and immature behaviors
- Loss of appetite and sleep disorders
- May be able to verbalize some feelings and understand some divorce-related changes • Increased anxiety and aggression
- Feelings of abandonment by departing parent

Middle School–Age Children (6 to 8 Years Old)

- Panic reactions
- Feelings of deprivation—loss of parent, attention, money, and secure future
- Profound sadness, depression, fear, and insecurity
- Feelings of abandonment and rejection
- Fear regarding the future
- Difficulty expressing anger at parents
- Intense desire for reconciliation of parents
- Impaired capacity to play and enjoy outside activities
- Decline in school performance
- Altered peer relationships—become bossy, irritable, demanding, and

manipulative

- Frequent crying, loss of appetite, sleep disorders
- Disturbed routine, forgetfulness

Later School–Age Children (9 to 12 Years Old)

- More realistic understanding of divorce
- Intense anger directed at one or both parents
- Divided loyalties
- Ability to express feelings of anger
- Ashamed of parental behavior
- Desire for revenge; may wish to punish the parent they hold responsible
- Feelings of loneliness, rejection, and abandonment
- Altered peer relationships
- Decline in school performance
- May develop somatic complaints
- May engage in aberrant behavior, such as lying, stealing
- Temper tantrums
- Dictatorial attitude

Adolescents (12 to 18 Years Old)

- Able to disengage themselves from parental conflict
- Feelings of a profound sense of loss—of family, childhood
- Feelings of anxiety
- Worry about themselves, parents, siblings
- Expression of anger, sadness, shame, embarrassment
- May withdraw from family and friends
- Disturbed concept of sexuality
- May engage in acting-out behaviors

Source: (Hockenberry et al., 2017)

3) Single Parenting and Poverty

A person can acquire the status of a single parent as a result of; divorce, separation, death of a spouse, or birth or adoption of a child. Financial hardship problems are commonly experienced by women who get custody of their children, supported by (The Annie E. Casey Foundation, 2015), that in 2013, there were 34% of families with women as single parents had a household income below the poverty line. Single parents will spend a lot of time outdoors and away from their children all day to provide for the family's financial needs, especially if the wife did not work before. Wives have difficulty adjusting to their new role as breadwinners and arranging child care, especially if the child is sick. Data BPS (2022) shows that in Indonesia, the number of children aged 0-17 years living

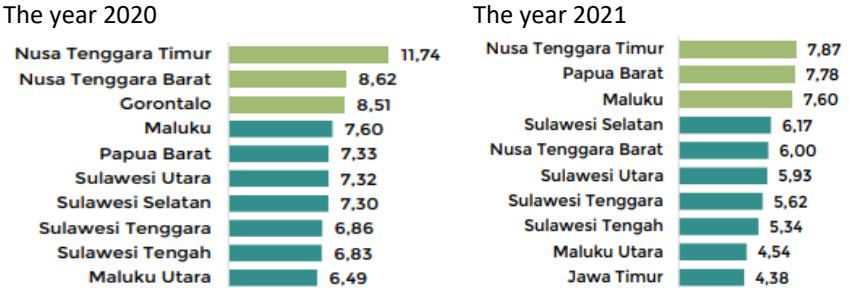
below the poverty line was 12.23% in 2020 and increased to 12.64 in 2021. The percentage of abandoned children aged 5-17 has increased from 2020 by 1.16% to 2.02% in 2021-2021. KPAI data as of December 2020, the number of abandoned children in Indonesia reached 67,368 people (KPAI, 2021). The National Survey of Child Health in America states that 13 percent (2.8 million) of children aged five years and under are in families that face difficulties in parenting because their parent work. As many as 50 percent of parents experience problems being late for work or leaving early due to childcare issues. As many as 23 percent of them end up being fired from their jobs due to being late and lacking fulfillment of working hours. In 2019, as many as 62 percent of children aged five years and under were in daycare centers, as many as 47 percent were children aged 1 to 2 years, and 32 percent were children under 12 months of age. Children must get good care during their growth and development because the brain develops optimally if it gets safe care without stress. In 2019, in the United States, the number of children aged five years and under was 23 million. In 2021, the age of the 25- to 54-year-old labor force stood at 53 percent, and more than a third or 37 percent had young children. If parents cannot find a good place for their child's care, then parents cannot go to work, which will reduce the family's ability to provide for the family independently, leading to poverty (The Annie E. Casey Foundation, 2023).

4) Kinship Care

As a result of divorce, more than 2.7 million American children are cared for by extended family or close family friends within a certain period (The Annie E. Casey Foundation, 2012). Generally, children are entrusted to families with economic levels that tend to be poor, single, older, less educated, and unemployed, so the child gets very poor care. The nutritional status of toddlers will be good if the quality of parenting is improved in line with the results of research (Indriati et al., 2023), which states that children's nutritional status tends to be better if children are in direct parental care compared to being cared for by others. The percentage of children aged 0-17 who do not live with both parents and are cared for by others decreased by 0.92 percent in 2021. The three provinces with the highest achievement in the number of children who do not live with their parents are East Nusa Tenggara, West Papua, and Maluku provinces (Boxes 2.3) because parents work as Indonesian

Workers (Republik Indonesia, 2020). In Indonesia, the percentage of children aged 5-17 years who are abandoned is 1.16 percent in 2020 and 2.02 percent in 2021, while the number of children under five who receive improper care is 3.64 percent in 2020 and 3.69 percent in 2021 (BPS, 2022).

Box 2.3. Percentage of Children Aged 0-17 Who Do Not Live with Both Parents by Province



Source: BPS, (2022)

5) Foster Parenting

Foster care is placing children to live in a good environment, and the placement has received approval from the family or parents. The child will live with other children and caregivers without family relationships. The child’s living situation can be either a legal foster home or a pre-adoption home. Although orphanages are designed to provide short-term care, children often stay for many years. Nurses should be aware that on any given day, there will be an increase in the number of children who need orphanages to meet child welfare (The Annie E. Casey Foundation, 2015).

6) Stunting Toddlers

The percentage of stunting toddlers decreased by 2.52 from 2020 by 26.92 percent to 24.40 percent in 2021. Some of the factors causing stunting in Indonesia include poor parenting practices, including lack of maternal knowledge about health and nutrition before and during pregnancy, limited postnatal care health services, lack of household/family access to nutritious food, and lack of access to clean water and sanitation (TNP2K, 2017). Malnutrition occurs when the baby is in the womb and in the early days after the baby is born, but stunting can

be seen after the baby is two years old (TNP2B, 2021). In 2020, the number of stunted children under five was 26.92 percent; in 2021, it decreased to 24.4 percent. In 2020, 10.58 percent of children aged 0-17 years consumed calories < 1400 kcal, increasing to 10.15 percent in 2021. The Ministry of Health (2020) explained that malnutrition conditions will hinder the child's growth and development process optimally and have a negative impact on the child's future.

7) Parenting the Adopted Child

Adoption is establishing a relationship between a child and a parent that does not have a legally established and legalized biological relationship. Foster parents have the same rights and obligations as the child's biological parents to take care of children. The right to care for children is obtained legally when the biological father and mother decide to waive the child's rights. The fundamental question is whether the child's biological father and mother decided to hand over their child to someone else based on considerations in the child's best interests. Recognition of the care of children who have received legal recognition, freeing children from their legal ties to their biological parents, and obtaining adoption and proper custody rights from their new parents. In today's era, the interest and demand for adoption increases along with the increase in the LGBT community, where this community prefers to adopt to bring children into their families. Host families have minimal preparation when welcoming a new member into their family, so they need support from the same community. The sooner the baby enters their adoptive family home, the better the chances of parent-infant attachment; therefore, the baby must immediately be untied to his biological parents. The closeness and attachment between infants and foster parents depend mainly on the time they spend together early in the baby's life. The way siblings interact and accept their adoptive siblings must be well-emphasized to avoid competition and bullying between the two (Hockenberry et al., 2017).

8) Cross-Racial and International Adoption

Many families adopt children from different racial and national backgrounds. Children adopted by different races have a more severe problem than those adopted by the same race, namely the striking physical and cultural differences. Although families give full acceptance to

adopted children, the environment outside the family and the bigotry of their friends is a challenge to bullying and painful feelings for adopted children. In international adoptions, parents generally receive little objective information about the child, including weight, height, and head circumference, and often do not know the history of the child's disease; for example, babies often experience diarrhea, malnourished babies, babies experience delays in growth and development, and other problems that can cause stress for foster parents (Hockenberry et al., 2017).

Nursing Alert

As a healthcare provider, it's important not to ask the wrong questions, such as:

- "Is he a member of your family, or is he an adopted son?"
- "What do you know about 'real' moms?"
- "Do they have the same father?"
- "How much does it cost to adopt him?"

9) Religious Beliefs

In practice, applying the nursing process to meet spiritual needs can improve the spiritual well-being of children and families. Religion and spirituality influence an individual's view of illness, treatment regimens, and the role and utility of healthcare providers. Beliefs also influence individuals in making restrictions to consume certain types of food, specific dietary restrictions, and certain rituals related to birth and death, for example, in the group of Jehovah's Witnesses who refuse blood transfusions to be performed for themselves and their children. In certain situations where children need lifesaving transfusions, nurses face this dilemma. Legally, parents are primarily obligated to care for and make decisions for their underage child. However, the principle of law *parents patriae* establishes that the state has a primary interest in the health and well-being of its citizens. Parents who refuse medical care essential to their child's safety are considered neglected.

10) Mass Media

Indonesia is third in the world as the most internet users after India and China. In China, internet users reached 989.08 million, ranked second, India with 755.82 million internet users, and Indonesia ranked third with 212.35 million internet users. The Indonesian Internet Service Providers

Association (APJII) survey found that data on internet users in Indonesia reached 215.63 million people in the 2022-2023 period. The number of internet users is equivalent to 78.19% of the total population of Indonesia (275.77 million people). The trend of internet penetration in Indonesia continues to increase; in 2018, it reached 64.8%; in 2019-2020, it increased to 73.7 percent. In 2021-2022, it reached 77.02 percent, at 80% in 2022-2023. This data shows that Indonesians are increasingly literate about the internet (APJII, 2023). Proper media use can potentially encourage children and families to discover positive effects. Media can be used to introduce young children to learning more effectively and promote school activities. Box 2.4 explains the negative impact of media use on children.

Box 2.4. Media Effects on Children and Adolescents
(Hockenberry et al., 2017)

Media Effect	Potential Consequences
Violence	Violent behavior is one of the impacts of violent content in the media. Media also plays a major role in adults and children being insensitive to violence witnessed through various media, including television (including children’s programs), movies, music, and video games. Cyberbullying and harassment freely via text messages is a growing concern among middle and high school students.
Sex	Content and sexual images in media can contribute to teens’ beliefs and attitudes about sex, sexual behavior, and initiation of sexual relationships. Media featuring forced sex, including rape, cyber-bullying, and LGBT groups, can influence teens’ views of normal sexual behavior. In addition to negative impacts, the media can also function as a source of positive information on sexual behavior, namely, provide information and the impact of deviant sexual behavior applications such as sexually transmitted infections, teenage pregnancy, and LGBT youth.
Substance use and abuse	The increase in the use of drugs, alcohol, and tobacco use is continuously influenced by social media exposure. Content in social networks also pressures children to use it.
Obesity	The increase in the number of people with obesity occurs worldwide in all ages, from children to the elderly. Many studies say there is a relationship between the incidence of obesity and the duration of time using social media. Ads for

Media Effect	Potential Consequences
	unhealthy foods have increased the desire to snack and are associated with improper sleep duration.
Body Image	Media may play an important role in the development of body image awareness, expectations, and body, influenced by images on television, movies, magazines, videos on the Internet, TikTok, social networking sites, and websites that encourage individuals to consume food irregularly (Strasburger et al., 2012)

11) Abduction of people.

Identification is an important thing to do in newborns. The nurse must verify that the identification tape is securely fastened and verify the information (name, gender, maternal reception number, date, and time of birth) against the child’s actual birth and sex records. This identification process should occur optimally in the delivery room (Hockenberry et al., 2017).

SUMMARY

The mandate of the 1945 Constitution stipulates that every child has the right to survival, protection from violence and discrimination, and the right to grow and develop. The President set five priorities for protecting women and children, three of which focused on children, namely child protection efforts, reducing child labor, and decreasing child marriage. The government, together with parents, families, schools, and communities, must ensure that children in Indonesia get all their rights to achieve optimal physical, mental, and social growth so that they can contribute actively as the next generation to the nation’s progress. Complex efforts are made to improve children’s welfare, especially in the health sector, in line with the philosophy and nursing paradigms. The implementation of nursing care for children is carried out based on the principles of child nursing and applicable child nursing standards in Indonesia while considering the socio-cultural factors of each individual. The complexity of child health problems is handled by pediatric nurses together with families, better known as the concept of family-centered care. The concept of family-centered care emphasizes two concepts, namely: empowering and enabling. Suppose these two concepts can run well so that the child’s health status can improve physically and emotionally. In addition, it is necessary to apply the concept of atraumatic

care, namely the implementation of care without causing physical and psychological trauma. Nurses must have good communication skills to approach children and families. Nurses must also have competence in accordance with professional standards in carrying out actions, especially invasive actions that cause pain. The role of nurses as a profession must be able to foster therapeutic relationships. In addition, nurses must be able to perform their roles as educators, support and counseling, coordinators and collaborators, prevention and health promotion, family advocacy and caring, ethical decision maker, and researcher. The overall role of the nurse aims to improve the health and well-being of children and families. A harmonious nurse-child-family relationship is key for nurses to control and increase comfort during care. The therapeutic relationship also needs to be considered to avoid problems developing in the future.

In addition to physical health problems, children also experience various problems in daily life. Children are vulnerable to acts that cause mental trauma in community life, such as poverty, early marriage, parental divorce, lack of nutrition, education, neglect, physical violence, sexual violence, rape, the impact of natural disasters, child trafficking, and organ harvesting, and so on. To protect children from various acts of violence and other problems, the government enacted child protection laws and other laws of the Republic of Indonesia that support the fulfillment of needs and protection for children. Trends and issues related to children developing very much are also a big challenge for nurses, parents, and the government. Policymakers must be sensitive to issues related to children that continue to increase and become unrest in society, such as sexual crimes, child neglect, child poverty, etc. As an effort to prevent and handle it, the central government, through the Ministry of Women's Empowerment and Child Protection together with the Central Statistics Agency, has compiled indicators to measure the achievements of child protection development, fulfillment of children's rights and fulfillment of children's special rights in Indonesia to realize Golden Indonesia 2045 (Indonesia turns 100 years old in 2045). Various efforts must continue to be improved considering the results of the achievement analysis IPA in 2020-2021 nationally that has not met the target RPJMN which is 68.1%. In 2021, there was a significant decrease in the achievement of science values, from 66.89 in 2020 to 61.12 in 2021. Achievements The national IPKA showed an increase in achievement from 73.11 (in 2020) to 73.59 in

2021 but has not met the 2021 target of 76.13. Similarly, the IPHA in 2021 of 58.34 still did not exceed the target of 65.79.

In order to achieve the realization of Indonesia's Decent for Children 2030, the government strives so that every element of society can realize child protection. Of course, its existence is guaranteed by the state. Local governments also have an important role in ensuring the provision of children's rights and child protection efforts, as well as improving the provision of facilities and infrastructure that support the fulfillment of children's rights and special protection of children. Efforts to reduce violence against children by; Prioritizing violence prevention actions against children involving families, schools, and communities: improving reporting systems and complaint services for violence against children and carrying out major reforms in the management of handling cases of violence against children so that they can be carried out quickly, integrated, and comprehensively (Republik Indonesia, 2020).

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REVIEW QUESTIONS

- The Indonesian government has established four priority child protection policies to ensure and improve child welfare. Which point below is not the four policies above?
 - Providing economic support to children through the family
 - Increasing the role of mothers and families in education/childcare
 - Decrease in violence against children
 - Decrease in child labor
 - Decline in child marriage
- The hope that marrying off children will release families from poverty is one of the factors causing marriage at the age of children. In some areas with high poverty rates, releasing their daughters for marriage is thought to reduce the economic burden on their families. What strategies can be done by nurses in relation to the above?
 - Providing health education about healthy reproduction in families
 - Providing skills training to children and families
 - Providing financial assistance to children and families

- D. Helping children and families to gain access to health facilities
 - E. Providing support for families to increase their confidence in their responsibilities towards a decent life for children
3. Children experience more conflict, have difficulty contributing to positive things, have a bad mentality, are irritable and sad, feel lonely and worthless, and are easily influenced by environmental forces. Which point is most appropriate regarding the child's condition?
- A. Parenting and Divorce
 - B. Impact of Divorce on Children
 - C. Single Parenting dan Poverty
 - D. Foster Parenting
 - E. Stunting Toddlers
4. The divorce of parents gives rise to various changes in the family. In the process the divorce process consists of three phases, namely: acute phase, transitional phase, and stabilizing phase. Which of the following is included in the acute phase?
- A. This phase includes the legal steps of filing for dissolution of the marriage and, usually, the father's departure from the home.
 - B. The adults and children assume unfamiliar roles and relationships within a new family structure.
 - C. This phase is often accompanied by a change of residence, a reduced standard of living and altered lifestyle, a larger share of the economic responsibility being shouldered by the mother, and radically altered parent-child relationships.
 - D. The post-divorce family reestablishes a stable, functioning family unit.
 - E. Remarriage frequently occurs with concomitant changes in all areas of family life
5. When parent divorce, each child will experience different feelings and cause various changes in behavior. Generally, changes in children's feelings and behavior are grouped by age. In which age group below is there a disorder of the concept of sexuality in children according to the case above?
- A. Later Preschool Children (3 to 5 Years Old)
 - B. Early School–Age Children (5 to 6 Years Old)

- C. Middle School–Age Children (6 to 8 Years Old).
- D. Later School–Age Children (9 to 12 Years Old)
- E. Adolescents (12 to 18 Years Old)



CHAPTER 3

THE CONCEPT OF GROWTH AND DEVELOPMENT

INTRODUCTION

The learning material in this chapter explains the concept of growth and development to provide knowledge and understanding of growth and development in children according to their stages. At each stage of growth and development, there are distinctive characteristics, including fine motor skills, gross motor skills, speech and language skills, socialization, and independence skills. The child's growth stage starts from prenatal, germinal, embryonic, embryonal, neonatal, infant, toddler, preschool, middle childhood, and prepubertal to adolescence. The basis of Growth and Development in children includes the understanding of growth and development, growth characteristics, developmental characteristics, aspects of growth and development, factors that affect growth and development, stages of growth and development, theories of child development, basic needs of children, and monitoring child development. Nurses can professionally arrange interventions and implementations to achieve quality nursing care.

KEY TERMS

1. Growth
2. Development

LEARNING OBJECTIVES

A nurse needs to understand the basic concepts of growth, development, play, communication, anticipatory guidance, and immunization in children according to the child's age stage. This aims to improve the ability of nurses to carry out nursing care practices in children according to the

stage of growth and development. After completing this learning activity, it is expected to be able to:

1. Explain the Concept of Child Growth
2. Explain the Concept of Child Development
3. Understand the stages of child development
4. Child Growth Achievement Standards According to Children's Age
5. Family and Child Development

A. The Concept of Child Growth and Development

Assessment of child growth and development is exciting to know parents and health practitioners, especially for a pediatric nurse. Through growth and development evaluation, many things can be known by parents and caregivers of children, for example, whether the child's height and weight are in accordance with age or the extent of developmental abilities consisting of four aspects (gross motoric, fine motoric, speech and language and socialization and independence) according to the child's age. If there is a delay or deviation, stimulation and early treatment can be carried out to prevent worse things and accelerate the achievement of children's age-appropriate growth and development abilities. There are four dimensions of growth and development in children, as listed in boxes 3-1.

Box 3-1 Several dimensions of growth and development are interrelated

Growth is the increase in the number and size of cells during the process of cell division and the process of new protein synthesis, which impacts increasing the number and weight of one part of the body or the whole body.

Development is a process of gradual change or improvement of abilities, increasing capabilities from simpler to more complex and increasing individual capacity in line with the environment's growth, maturation, and learning processes.

Maturation is a process of increasing adaptability and competence. Maturity is often used to express changes in the complexity of structures and qualities that support organs to function better.

Differentiation is the process of changing the physical and chemical properties of cells to be more specific and distinctive, the ability to develop simple activities into more complex activities. It describes the increase in ability from simple activities to more complex.

All growth, development, maturation, and differentiation processes are related to each other, occur simultaneously and continuously, and no one process occurs without affecting other processes. The process is influenced by endocrine activity, genetic, constitutional, internal and external environment, and nutritional adequacy (Seidel et al., 2007). The process that runs normally will increase in body size; the body becomes more extensive with more complex functions; Personality development makes individuals more complex and mature. It can be concluded that growth produces a change in quantity, while development produces a change in quality.

Growth and Development

Growth is an increase in the size and number of cells and intracellular tissues that causes an increase in physical size and body structure wholly or partially, which can be measured in units of length and weight. Growth is related to changes in the quantity or number and size of body cells. An increase in the size and weight of all parts of the body indicates growth. Development is related to quality change; that is, there is an increase in the capacity of individual functions achieved through growth, maturation, and learning. Development focuses on changes that occur gradually from the lowest level to the highest level and is complex through maturation and learning (Hockenberry et al., 2017). Growth and development occur simultaneously. Growth is defined as the result of the interaction of the maturity of the central nervous system with the organs it affects, such as; the development of the neuromuscular system, emotions, speech skills, and socialization. We can look at the box 3-2 to see the stages of development from the prenatal period to adolescence.

Growth is a change in quantity characterized by changes in the number and size of body cells that cause an increase in the size and weight of all body parts. Development is a change in quality, that is, an increase in the capacity of individuals to function in line with the process of growth, maturation, and learning. Growth occurs simultaneously with development; in contrast to growth, development is the result of the interaction of the maturity of the central nervous system with the organs it affects, such as the development of the neuromuscular system, speech, emotion, and socialization. The achievement of these functions is essential for balancing an individual's life in interacting with others. Growth and development assessment are two very important points in

pediatric nursing. Problems that may initially be considered mild can cause major problems if they do not get treatment early.

Box 3-2. Developmental Age Periods

Prenatal Period; Conception to Birth

Germinal: conception to approximately two weeks old

Embryonic: 2 to 8 weeks

Fetal; 8 to 40 old (birth)

This period becomes one of the most important periods during the development period because in this period, the growth rate occurs rapidly, and the baby is in the phase of total dependence. In this phase, optimal prenatal care is important to achieve the health and well-being of mother and baby.

Infancy Period; Birth to 12 Months Old

Neonatal; Birth to 27 or 28 days old

Infancy; 1 to approximately 12 months old

Early Childhood—1 to 6 Years Old

Toddler: 1 to 3 years old

Preschool: 3 to 6 years old

In this period, the child develops a personality characterized by great curiosity and motor activity that is significantly increased from the previous phase. Children further improve language and social skills more broadly by initiating social relationships with individuals of various age levels. The child also learns role standards, initiates self-control or self-mastery, increases awareness of his or her ability to perform actions independently or with assistance, and develops a self-concept.

Middle Childhood—6 to 11 or 12 Years Old

Middle childhood is also called school age. In this development phase, children increasingly have a wider world, join peers, and have less time with family. Physical growth and mental and social development have increased relatively steadily. Children are more focused on developing skills through assignments at school and due to their roles outside school. Children learn to cooperate, socialize, and develop moral values in preparation for development in the next period. This period is a critical period for children in developing self-concept.

Later Childhood—11 to 19 Years Old

Prepubertal: 10 to 13 years old

Adolescence: 13 to approximately 18 years old

Adolescence is a transitional period starting from the beginning of puberty until

reaching early adulthood (after graduating from high school). During this phase, the child experiences a tumultuous period as the process of biological maturation and role changes follow personality changes from children to adults. The search for self-identity, accompanied by biological and psychological changes, causes physical and emotional turmoil that is sometimes difficult to control. Adolescents will internalize all previously learned values in late adolescence and focus on self-identity rather than group identity.

Directional Trends

Growth and development occur regularly, which at its stages reflect the extent to which the child has achieved physical development and maturation of neuromuscular functions. There are three general directions of development that occur in children: The first pattern is the cephalocaudal, or head-to-tail, direction. The first pattern is cephalocaudal, following a head-to-tail direction (Pic 2-1). The head will develop first with a complete shape and larger size, followed by the next body part towards the feet with a smaller and simpler shape. The development will continue towards the foot until it reaches the perfect shape and size. This cephalocaudal or head-to-tail pattern occurs more rapidly during the period before birth than the period after birth. Infants can achieve control of the head before they have control of the torso and extremities, achieve the ability to straighten the back after the ability to stand, use their eyes before their hands, and have control of the extremity of the hands and feet before control on the fingers and toes.

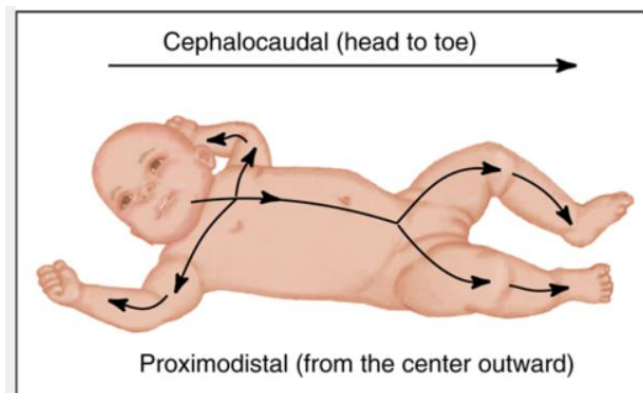


Figure 3.1 Patterns Cephalocaudal and Proximodistal

The cephalocaudal pattern is a direction of development that starts from the head to the feet, meaning that physical progress in structure and function begins at the head, towards the body, and then to the feet. The proximodistal pattern is the direction of development from the body's central axis to its edges or from the near part to the farther part. The child's bone marrow develops first and is followed by the outside of the body. The central nervous system develops earlier, followed by the development of the peripheral nervous system. Similarly, parts of the arm develop before the hands, and hands and feet develop before the fingers and toes. The third trend, differentiation, describes the development from simple operations to more complex activities and functions, from broad, global behavior patterns to more specific, refined patterns. All areas of development (physical, cognitive, social, and emotional) proceed in this direction. Through development and differentiation, early embryonal cells with vague, undifferentiated functions progress to an immensely complex organism composed of highly specialized and diversified cells, tissues, and organs. Generalized development precedes specific or specialized development; gross, random movements occur before fine muscle control.

Sequential Trends

In all dimensions of growth and development, there is a definite, predictable sequence, and each child passes through every stage. For example, children crawl before they creep, creep before they stand, and stand before they walk. Later facets of the personality are built on the early foundation of trust. The child babbles before being able to pronounce the words, which can then construct sentences. Developmental Pace Although development has a fixed, precise order, it does not progress at the same rate or Pace. There are periods of accelerated and decelerated growth in both total body growth and the growth of subsystems. Not all areas of development progress at the same Pace. When a spurt occurs in one area (such as a gross motor), minimal advances may occur in language, fine motor, or social skills. After the gross motor skill has been achieved, the focus will shift to another development area. The rapid growth before and after birth gradually levels off throughout early childhood. Growth is relatively slow during middle childhood, markedly increases at the beginning of adolescence, and levels off in early adulthood. Each child grows at his or her own Pace.

Distinct differences are observed among children as they reach developmental milestones. To more easily understand the pattern of child development, in general, can be seen in boxes 3-3 below.

Box 3-3 Patterns of Development in General in Children

Pattern	Path of progression	Description and Examples
Cephalocaudal	From head to toe	Physical progress in structure and function starts from the head to the body and then to the feet. For example, Children can head control (lift, move the head) and stand.
Proximodistal	From the trunk to the tips of the extremities	Development from the middle axis of the body to the peripheral part or from the near part of the torso to the older part. For example, Neonates can crawl using their hands and feet, but their fingers cannot yet pinch beads.
General to specific	From simple tasks to more complex tasks	The child achieves general developmental abilities first before reaching more specific or specific abilities; Fine motor control is achieved after the child can master gross muscle movements. For example, the child is able to stand before he can walk properly.

Sensitive Periods

The sensitive period is also called the critical period, the vulnerable period, or the optimal period, which is the period of time when the individual is in a condition that is more susceptible to positive or negative influences. In this period, the child's interaction with the environment determines whether the child gets a beneficial or harmful effect. For example, the improvement of children's ability to socialize is influenced by an environment that stimulates the maturity of these functions. An interactive environment will influence the child to more quickly achieve the safety of the socialization function than if the child is in authoritarian care. Authoritarian parenting places strict restrictions on children not to socialize with the outside world; there are strict prohibitions, so children have difficulty building relationships with others. Sensitive periods of psychosocial development occur when an event in the environment has

the maximum effect on personality, for example, the early socialization abilities that occur in the first year when the baby begins to experience social attachments. In this sensitive period, parents must commit to stay in communication with their children and build a warm and responsive relationship. Warm and continuous relationships greatly affect the formation of healthy personality relationships. The same concept needs to be applied to prepare children to achieve optimal skill abilities, such as toilet training, motor skills, reading and writing, coloring, singing, and dancing.

Each child grows in his or her unique way, with a predictable sequence of events that occur at different times from one child to another. The growth rate of children in varying periods allows for individual differences. Periods of rapid growth occur in children during puberty and can occur earlier or later than others. Child growth can be fast or slow during sensitive periods; girls are generally more advanced in physiological growth than boys in each age stage. Generally, girls achieve faster growth abilities than boys at any age stage.

Biologic Growth and Physical Development

When biological growth occurs, there will be changes in external dimensions or body shape. Changes in the structure, function of internal organs and tissues reflect the extent of the physiological abilities that the child achieves. The maturity of each part of the body is achieved in different periods, which is directly related to changes in the size of the child (for example, changes in blood pressure or heart rate of children at different age stages). Musculoskeletal growth describes the growth of the whole body; The development of the brain, lymphoid, adrenals, and reproductive tissues follow a different pattern in each individual (Pic. 3-2). When children experience a history of severe illness or poor nutritional needs or are recovering from chronic illness, it can interfere with the body's growth process. This growth disorder can be seen from the delay of children reaching height or weight according to age. Meeting adequate nutritional needs, both in quantity and proportion, will impact accelerating the dramatic growth rate from a low growth rate to continuing to achieve an optimal growth rate. Remember that children who experience growth delays due to secondary factors such as severe illness or chronic malnutrition can achieve a dramatic growth spurt until they achieve optimal growth.

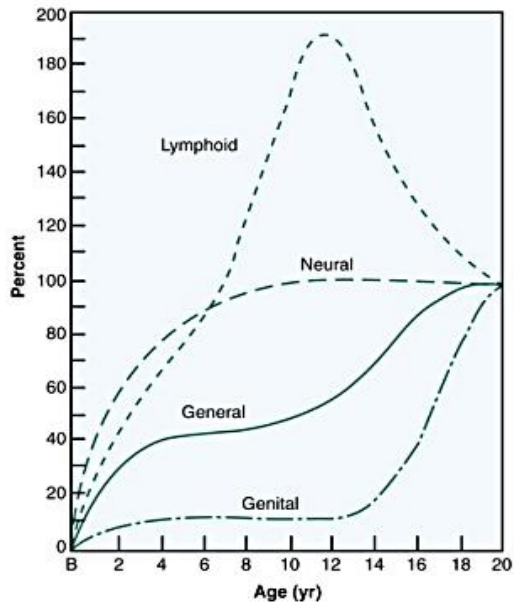


Figure 3-2 Growth rates for the body and three types of tissues. *General*—body as a whole; external dimension; and respiratory, digestive, renal, circulatory, and musculoskeletal systems. *Lymphoid*—thymus, lymph nodes, and intestinal lymph masses. *Neural*—brain, dura, spinal cord, optic apparatus, and head dimensions. (Jackson, Patterson, and Harris, 1930). (Data from Jackson JA, Patterson DG, Harris RE: *The measurement of man*, Minneapolis, 1930, University of Minnesota Press.) (Hockenberry et al., 2017)

External Proportions

Variations in the growth rate of different tissues and organ systems produce significant changes in body proportions during childhood. The cephalocaudal development trend is most evident in total body growth, as indicated by these changes. During embryonal development, the head is the fastest-growing body part, and at two months of gestation, the head constitutes 50% of the total body length. Variations in the growth rate of different tissues and organ systems result in significant changes in body proportions during childhood. The trend of cephalocaudal development is most pronounced in the growth of the body. During embryonal development, the head is the fastest-growing part of the

body, and by two months gestation, the head constitutes 50% of the total body length. During infancy, trunk growth predominates; In newborns, the length of the lower limbs is one-third of the total body length but only 15% of the total body weight; In childhood, the foot is the fastest-growing part; In adolescence, the trunk again elongates. In adults, the length of the lower limbs is half of the total height and $\geq 30\%$ of the total body weight. As growth progresses, the midpoint in the head-to-foot measurement gradually descends, and the umbilicus position at birth drops to the position of the pubic symphysis at a certain age.

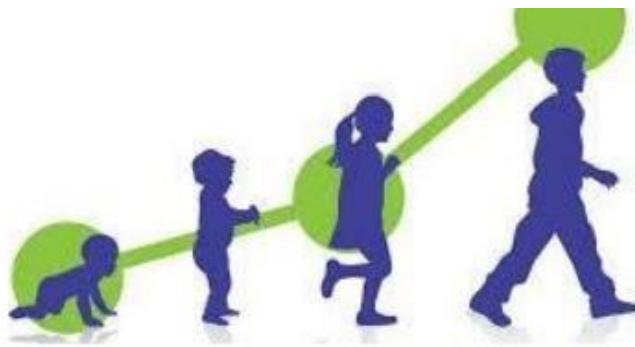


Figure 3-3. Changes in Body Proportions Throughout Growth
(Damanik & Sitorus, 2019)

Biologic Development

At the age of infancy, there are very dramatic physical changes and abilities where all body systems undergo progressive maturation and skill improvement so that the baby is able to respond and cope with the environment. The development of gross and fine motor skills occurs head-to-toe and center-to-periphery (cephalocaudal-proximodistal) sequence.

Biological Determinants of Growth and Development

The physical changes particularly pronounced in childhood and adolescence indicate the extent to which physical growth abilities they achieve. Growth in specific organs can occur continuously or occur gradually. Teeth and bones are examples of body parts that experience continuous growth. In contrast, growth that occurs gradually can occur in

the emergence of secondary sex characteristics in both boys and girls. The results of height and weight measurements are used as a standard for achieving child growth; dan age is used as a benchmark for children’s developmental abilities. In the concept of development, there are four development sectors: language skills, fine motor skills, gross motor skills, socialization, and independence. We will study each sector. The following describes the standards of child growth achievement according to the child’s age (Box 3-4), infant growth and development (Box 3-5), sensory development during infant (Box 3-6), toddler growth and development (Box 3-7), and box 3-8 on sensory development during toddler.

Box 3-4. Child Growth Achievement Standards According to Children’s Age

Age Group	Weight*	Height*
Birth to 6 months old	Weekly gain: 140 to 200 g (5 to 7 oz), or doubles by the end of the first 4 to 7 months†	Monthly gain: 2.5 cm (1 inch)
6 to 12 months old	Weight gain: 85 to 140 g (3 to 5 ounces). Triples by the end of the first year	Monthly gain: 1.25 cm (0.5 inches) Birth length increases by ≈50% by the end of the first year
Toddlers	Birth weight quadruples by age 2 ½ years	Height at age two years is ≈50% of eventual adult height. Gain during second year: About 12 cm (4.7 inches). Gain during the third year: About 6 to 8 cm (2.4 to 3.1 inches)
Preschoolers	Yearly gain: 2 to 3 kg (4.5 to 6.5 pounds)	Birth length doubles by 4 years old. Yearly gain: 5 to 7.5 cm (2 to 3 inches)
School-age children	Yearly gain: 2 to 3 kg (4.5 to 6.5 pounds)	Yearly gain after age 7 years: 5 cm (2 inches). Birth length triples by about 13 years old
Pubertal Growth Spurt		
Females: 10 to 14 years	Weight gain: 7 to 25 kg (15.5 to 55 pounds) Mean: 17.5 kg (38.5 pounds)	Height gain: 5 to 25 cm (2 to 10 inches); ≈95% of mature height achieved by the onset of menarche or skeletal age of 13. Mean: 20.5 cm (8 inches)
Males: 11 to 16 years	Weight gain: 7 to 30 kg (15.5 to 66 pounds) Mean: 23.7 kg (52.2 pounds)	Height gain: 10 to 30 cm (4 to 12 inches); ≈95% of mature height achieved by skeletal age of 15 years old Mean: 27.5 cm (11 inches)

Yearly height and weight gains for each age group represent averaged estimates from various sources. †Jung FE, Czajka-Narins DM: Birth weight doubling and tripling times: an updated look at the effects of birth weight, sex, race, and type of feeding, *Am J Clin Nutr* 42(2):182–189, 1985. (Hockenberry et al., 2017)

Box 3-5. Growth and Development During Infancy

Physical	Development Ability
<p>1 Month Old Weight gain of 150 to 210 g (5 to 7 oz) weekly for first 6 months</p> <p>Height gain of 2.5 cm (1 inch) monthly for first 6 months</p> <p>Head circumference increases by 1.5 cm (0.5 inches) monthly for first 6 months.</p> <p>Primitive reflexes are present, and strong Doll’s eye and dance reflex fade.</p> <p>Obligatory nose breathing (most infants)</p>	<p>Gross Motor Assumes flexed position with pelvis high but knees not under abdomen when prone (at birth, knees flexed under abdomen) Can turn head from side to side when prone; lifts head momentarily from bed Has marked head lag, especially when pulled from lying to sitting position Holds head momentarily parallel and in midline when suspended in the prone position Assumes asymmetric tonic neck flex position when supine. When held in a standing position, the body is limp at the knees and hips. The back is uniformly rounded in the sitting position, without head control.</p>
	<p>Fine Motor Hands predominantly closed Grasp reflex strong Hand clenches on contact with the rattle</p>
	<p>Vocalization Cries to express displeasure. Makes small, throaty sounds and makes comfort sounds during feeding.</p>
	<p>Socialization and Cognition It is in the sensorimotor phase—stage I, use of reflexes (birth to 1-month-old), and stage II, primary circular reactions (1 to 4 months old). Watches parent’s face intently as she or he talks to infant</p>
<p>2 Months Old The posterior fontanel closed. Crawling reflex disappears</p>	<p>Gross Motor Assumes less flexed position when prone—hips flat, legs extended, arms flexed, head to side Less head lag when pulled to sitting position Can maintain the head in the same plane as the rest of the body when held in ventral suspension When prone, can lift head almost 45 degrees off table When moved to a sitting position, the head is held up but bends forward Assumes symmetric tonic neck position intermittently</p>
	<p>Fine Motor Hands often open. Grasp reflex fading</p>

Physical	Development Ability
	<p>Vocalization Vocalizes, distinct from crying Crying becomes differentiated Coos Vocalizes</p> <p>Socialization and Cognition Demonstrates social smile in response to various stimuli</p>
<p>3 Months Old Primitive reflexes fading</p>	<p>Gross Motor Able to hold head more erect when sitting but still bobs forward Has only slight head lag when pulled to sitting position Assumes symmetric body positioning Able to raise head and shoulders from a prone position to a 45- to 90-degree angle from the table; bears weight on forearms When held in standing position, able to bear a slight fraction of weight on legs Regards own hand.</p> <p>Fine Motor Actively holds rattle but will not reach for it Grasp reflex absent Hands kept loosely open Clutches own hand; pulls at blankets and clothes</p> <p>Vocalization Squeals aloud to show pleasure Coos, babbles, chuckles Vocalizes when smiling “Talks” a great deal when spoken to. Less crying during periods of wakefulness</p> <p>Socialization and Cognition Displays considerable interest in surroundings Ceases crying when a parent enters the room Can recognize familiar faces and objects, such as feeding bottle Shows awareness of strange situations</p>
<p>4 Months Old Drooling begins Moro, tonic neck, and rooting reflexes have disappeared</p>	<p>Gross Motor Has almost no head lag when pulled to a sitting position Balances head nicely in a sitting position Backless rounded, curved only in the lumbar area Able to sit erect if propped up Able to raise head and chest off the surface to the angle of 90 degrees Assumes predominant symmetric position •Rolls from back to the side</p> <p>Fine Motor Inspects and plays with hands; pull clothing or blanket over the face in play. Tries to reach objects with hand but overshoots Grasps object with both hands</p>

Physical	Development Ability
	<p>Plays with rattle placed in hand and shakes it but cannot pick it up if dropped Can carry objects to mouth</p> <p>Vocalization Makes consonant sounds n, k, g, p, b Laughs aloud Vocalization changes according to mood</p> <p>Socialization and Cognition Is in stage III, secondary circular reactions Demands attention by fussing; becomes bored if left alone Enjoys social interaction with people Anticipates feeding when sees bottle or mother if breastfeeding Shows excitement with the whole body, squeals heavily breathe Shows interest in strange stimuli Begins to show memory</p>
<p>5 Months Old Beginning signs of tooth eruption Birth weight doubles</p>	<p>Gross Motor No head lag when pulled to a sitting position When sitting, able to hold head erect and steady Able to sit for long periods when back is well supported Back straight When prone, assumes symmetric positioning with arms extended Can turn over from abdomen to back When supine, puts feet to mouth</p> <p>Fine Motor Able to grasp objects voluntarily Uses palmar grasp, ambidextrous approach Plays with toes Takes objects directly to the mouth Holds one cube while regarding a second one</p> <p>Vocalization Squeals Makes cooing vowel sounds interspersed with consonant sounds (e.g., ah-goo)</p> <p>Socialization and Cognition Smiles at a mirror image Pats bottle or breast with both hands More enthusiastically playful but may have rapid mood swings is able to discriminate strangers from family Vocalizes displeasure when the object is taken away Discovers parts of the body</p>
<p>6 Months Old The growth rate may begin to decline Weight gain of 90 to 150 g (3 to 5 oz)</p>	<p>Gross Motor When prone, can lift chest and upper abdomen off the surface, bearing weight on hands When about to be pulled to a sitting position, lifts head Sits in a high chair with back straight Rolls from the back to the abdomen</p>

Physical	Development Ability
<p>weekly for next 6 months Height gain of 1.25 cm (0.5 inch) monthly for next 6 months</p> <p>Teething may begin with eruption of two lower central incisors</p> <ul style="list-style-type: none"> •Chewing and biting occur 	<p>When held in a standing position, bears almost all of the weight hand regard absent.</p> <p>Fine Motor Re-secures a dropped object Drops one cube when another is given Grasps and manipulates small objects. Holds bottle Grasps feet and pulls to mouth</p> <p>Vocalization Begins to imitate sounds Babbling resembles one-syllable utterances—ma, mu, da, di, hi Vocalizes to toys, mirror image Takes pleasure in hearing own sounds (self-reinforcement)</p> <p>Socialization and Cognition Recognizes parents; begins to fear strangers Holds arms out to be picked up Has definite likes and dislikes Begins to imitate (cough, protrusion of tongue) Excites on hearing footsteps Briefly searches for a dropped object (object permanence beginning). Frequent mood swings, from crying to laughing, with little or no provocation</p>
<p>7 Months Old Eruption of upper central incisors</p>	<p>Gross Motor When supine, spontaneously lifts head off surface Sits, leaning forward on both hands When prone, bears weight on one hand Sits erect momentarily Bears total weight on feet When held in a standing position, he bounces actively</p> <p>Fine Motor Transfers objects from one hand to the other Has a uni-dextrous approach and grasp Holds two cubes more than momentarily Bangs cubes on the table Rakes at a small object</p> <p>Vocalization Produces vowel sounds and chained syllables—baba, dada, kaka. Vocalizes four distinct vowel sounds “Talks” when others are talking</p> <p>Socialization and Cognition Increasing fear of strangers; shows signs of fretfulness when parent disappears; Imitates simple acts and noises Tries to attract attention by coughing or snorting Plays peek-a-boo Demonstrates dislike of food by keeping lips closed Exhibits oral aggressiveness in biting and mouthing Demonstrates expectation in response to repetition of stimuli</p>

Physical	Development Ability
<p>8 Months Old It begins to show regular patterns in bladder and bowel elimination. Parachute reflex appears</p>	<p>Gross Motor Sits steadily unsupported Readily bears weight on legs when supported; may stand holding onto furniture. Adjusts posture to reach an object</p>
	<p>Fine Motor Has beginning pincer grasp using the index, fourth, and fifth fingers against the lower part of the thumb Releases objects at will Rings bell purposely Retains two cubes, while regarding the third cube Secures an object by pulling on a string Reaches persistently for toys out of reach</p>
	<p>Vocalization Makes consonant sounds t, d, w Listens selectively to familiar words Utterances signal emphasis and emotion Combines syllables, such as data, but does not ascribe meaning to them</p>
	<p>Socialization and Cognition Increasing anxiety over the loss of a parent, particularly a mother, and fear of strangers Responds to the word “no” Dislikes dressing, diaper change</p>
<p>9 Months Old Eruption of the upper lateral incisor may begin</p>	<p>Gross Motor Creeps on hands and knees Sits steadily on the floor for a prolonged time (10 minutes) Recovers balance when leaning forward but cannot do so when leaning sideways Pulls self to a standing position and stands holding on to furniture</p>
	<p>Fine Motor Uses thumb and index finger in crude pincer grasp Preference for the use of dominant hand now evident Grasps the third cube Compares two cubes by bringing them together</p>
	<p>Vocalization Responds to simple verbal commands Comprehends “no-no”</p>
	<p>Socialization and Cognition Parent (mother) is increasingly important for own sake Shows an increasing interest in pleasing parent He begins to show fears of going to bed and being left alone Puts arms in front of the face to avoid having it washed</p>
<p>10 Months Old Labyrinth-righting</p>	<p>Gross Motor Can change from prone to a sitting position</p>

Physical	Development Ability
reflex is strongest when the infant is in a prone or supine position; it is able to raise the head	<p>Stands while holding on to furniture; sits by falling down Recovers balance easily while sitting While standing, lifts one foot to take a step</p> <p>Fine Motor Crude release of an object beginning Grasps bell by the handle</p> <p>Vocalization •Says “dada,” “mama” with meaning Comprehends “bye bye” May say one word (e.g., “hi,” “bye,” “no”)</p> <p>Socialization and Cognition Inhibits behavior to the verbal command of “no-no” or own name Imitates facial expressions; waves bye bye Extends toy to another person but will not release it Develops object permanence Repeats actions that attract attention and cause laughter Pulls clothes of another to attract attention Plays interactive games, such as pat-a-cake Reacts to adult anger; cries when scolded Demonstrates independence in dressing, feeding, locomotive skills, and testing of parents Looks at and follows picture in a book</p>
<p>11 Months Old Eruption of the lower lateral incisor may begin</p>	<p>Gross Motor When sitting, pivots to reach toward back to pick up an object Cruises or walks holding on to furniture or with both hands held</p> <p>Fine Motor Explores objects more thoroughly (e.g., clapper inside bell) It has a neat pincer grasp Drops object deliberately for it to be picked up. Puts one object after another into a container (sequential play) Able to manipulate an object to remove it from the tight-fitting enclosure</p> <p>Vocalization Imitates definite speech sounds</p> <p>Socialization and Cognition Experiences joy and satisfaction when a task is mastered Reacts to restrictions with frustration Rolls ball to another on request Anticipates body gestures when a familiar nursery rhyme or story is being told (e.g., holds toes and feet in response to “This little piggy went to market”) Plays games up-down, “so big,” or peek-a-boo Shakes head for “no”</p>
<p>12 Months Old Birth weight tripled</p>	<p>Gross Motor Walks with one hand held</p>

Physical	Development Ability
Birth length increased by 50%	Cruises well May attempt to stand alone momentarily; may attempt the first step alone
Head, and chest circumference equal (head circumference 46 cm [18 inches])	Can sit down from a standing position without help
Has six to eight deciduous teeth	Fine Motor Releases cube in a cup Attempts to build a two-block tower but fails Tries to insert a pellet into a narrow-necked bottle but fails Can turn pages in a book, many at a time
Anterior fontanel almost closed	Vocalization Says three to five words besides “dada,” “mama” Comprehends the meaning of several words (comprehension always precedes verbalization) Recognizes objects by name Imitates animal sounds
Landau reflex fading	Understands simple verbal commands (e.g., “Give it to me,” “Show me your eyes”)
Babinski reflex disappears	Shows emotions such as jealousy, affection (may hug or kiss on request), anger, fear Enjoys familiar surroundings and explores away from parent Is fearful in strange situations; clings to parent
Lumbar curve develops; lordosis evident during walking	May develop the habit of a “security blanket” or favorite toy Has increasing determination to practice locomotor skills Searches for an object even if it has not been hidden but searches only where the object was last seen

Source (Hockenberry et al., 2017)

Box 3-7. Growth and Development during the Toddler

Physical	Gross Motor	Fine Motor	Vocalization	Socialization and Cognition
15 Months Old				
Steady growth in height and weight Head circumference, 48 cm (19 inches) Weight, 11 kg (24 pounds) Height, 78.7 cm (31 inches)	Walks without help (usually since 13 months old) Creeps up stairs Kneels without support Cannot walk around corners or stop suddenly without losing balance without support Cannot throw ball without falling	Constantly casting objects to floor Builds tower of two cubes Holds two cubes in one hand Releases a pellet into bottle with narrow end Scribbles spontaneously Uses cup well but often rotates spoon before it reaches mouth	Uses expressive jargon Says four to six words, including names "Asks" for objects by pointing Understands simple commands May shake head to denote "no" Uses "no" even while agreeing to the request Uses common gestures, such as putting cup to mouth when empty	Tolerates some separation from parent Less likely to fear strangers Beginning to imitate parents, such as cleaning house (sweeping, dusting), folding clothes May discard bottle Kisses and hugs parents; may kiss pictures in a book Expresses emotions; has temper tantrums
18 Months Old				
Physiologic anorexia from decreased growth needs Anterior fontanel closed Physiologically able to control sphincters	Runs clumsily; falls often Walks up stair with one hand held Pulls and pushes toys Jumps in place with both feet Seats self on chair Throws ball overhand without falling	Builds tower of three or four cubes Release, prehension, and reach well developed Turns two or three pages in a book at a time a drawing, makes stroke imitatively Manages spoon without rotation	Says 10 or more words Points to common object, such as a shoe or ball, and to two or three body parts Forms word combinations Forms gesture-word combinations (points while naming) Forms gesture-gesture combinations	Great imitator (domestic mimicry) Takes off gloves, socks, and shoes and unzips zippers Temper tantrums may be more evident Beginning awareness of ownership ("my toy") May develop dependence on transitional objects, such as security blanket
24 Months Old				
Head circumference, 49 to 50 cm (19.5 to 20 inches) Chest circumference exceeds head	Goes up and down stairs alone with two feet on each step Runs fairly well,	Builds tower of six or seven cubes Aligns two or more cubes like a train Turns pages	Has a vocabulary of approximately 300 words Uses two- or three-word phrases Uses pronouns	Stage of parallel play Has sustained attention span Temper tantrums decreasing

Physical	Gross Motor	Fine Motor	Vocalization	Socialization and Cognition
<p>circumference Lateral diameter of chest exceeds anteroposterior diameter Usual weight gain of 1.8 to 2.7 kg (4 to 6 pounds) per year Usual gain in height of 10 to 12.5 cm (4 to 5 inches) per year Adult height approximately double height at 2 years old Primary dentition of 16 teeth May demonstrate readiness for beginning daytime control of bowel and bladder</p>	<p>with wide stance Picks up object without falling Kicks ball forward without overbalancing</p>	<p>of book one at a time In drawing, imitates vertical and circular strokes Turns doorknobs; unscrews lids</p>	<p>“I,” “me,” “you” Understands directional commands Gives first name; refers to self by name Verbalizes need for toileting, food, or drink Talks incessantly Able to remember and imitate arbitrary sequences of manual actions and gestures</p>	<p>Pulls people to show them something Increased independence from parent Dresses self in simple clothing Develops visual recognition and verbal self-reference (“me big”) Develops awareness that feelings and desires of others may be different and begins to explore implications and consequence</p>
30 Months Old				
<p>Birth weight quadrupled Primary dentition (20 teeth) completed May have daytime bowel and bladder control</p>	<p>Jumps with both feet Jumps from chair or step Stands on one foot momentarily Takes a few steps on tiptoe</p>	<p>Builds tower of eight cubes Adds chimney to train of cubes Good hand-finger coordination; holds crayon with fingers rather than fist In drawing, imitates vertical and horizontal strokes; makes two or more strokes for cross; draws circles</p>	<p>Gives first and last name Refers to self by appropriate pronoun Uses plurals Names one color</p>	<p>Separates more easily from parent. Participate in play; can carry breakable objects; pushes with good steering. Begins to notice gender differences; knows own gender. Independently to the toilet except for wiping. Emotions extend to include pride, shame, guilt.</p>

Source: (Hockenberry et al., 2017)

Box 3-8. Sensory Development During Toddler

15-Month-Old

Able to identify geometric forms; places round object into appropriate hole Binocular vision well developed Displays an intense and prolonged interest in pictures

24 Months Old

Accommodation well developed in geometric discrimination; able to insert square block into oblong space

Stages of Development of Infant

There are five stages of development during childhood:

- 1) Infancy (birth until age 1)
- 2) The toddler (ages 1 to 3).
- 3) The preschool (ages 3 to 6).
- 4) School-age (ages 6 to 12).
- 5) Adolescence (13 to 19).

In recent times, the age of adolescence is grouped in the age period of 10 to 25 years, this is related to the results of research on the ability of brain development

Growth Features

- a) Changes in body proportions occur. which can be observed in infancy and adulthood.
- b) The loss of old traits and the emergence of new traits. These changes are characterized by the loss of milk teeth and the onset of permanent teeth, the loss of primitive reflexes in infancy, the onset of secondary sex signs and other changes.
- c) Irregular growth speed. This is characterized by certain periods where growth takes place rapidly that occurs in the prenatal, infant and adolescent periods and growth takes place slowly in preschool and school.

Theories of Development

Theories of personality and cognitive development state that a child must reach a certain stage of ability to enter the next stage of ability. The statements of these theories resemble the concept of biological development, such as; cephalocaudal, proximodistal, general to specific).

The following are presented some theories of development according to some experts.

Psychosocial Theory

Erik Erikson's (1959) psychosocial theory states that the psychosocial development of individuals is a function of the *ego* (the conscious part of the personality—and the most immediate part of mind control (Box 2-9)

Box 3-9. Psychosocial Development: Developing a Sense of Trust (Erikson)

Age-Group	Psychosocial theory	Cognitive theory	Psychosexual theory	Moral development theory
Infancy (birth to age 1)	Trust versus mistrust	Sensorimotor (birth to age 2)	Oral	Not applicable
Toddlerhood (ages 1 to 3)	Autonomy versus shame and doubt	Sensorimotor to preoperational	Anal	Preconventional
Preschool age (ages 3 to 6)	Initiative versus guilt	Preoperational (ages 2 to 7)	Phallic	Preconventional
School age (ages 6 to 12)	Industry versus inferiority	Concrete operational (ages 7 to 11)	Latency	Conventional
Adolescence (ages 13 to 19)	Identity versus role confusion	Formal operational thought (ages 11 to 20)	Genitalia	Postconventional

Source: (Lippincott Williams & Wilkins, 2015)

In boxes 3-10 below, it is described about the psychosocial development of children based on age

Box 3-10. Psychosocial Theory, Grouping According to Age

Birth to age 1; <i>trust versus mistrust</i>	The child develops trust as the primary caregiver meets his needs.
Ages 1 to 3; <i>autonomy versus shame and doubt</i>	The child learns to control his body functions and becomes increasingly independent, preferring to do things himself
Ages 3 to 6; <i>initiative versus guilt</i>	The child learns about the world through play and develops a conscience.
Ages 6 to 12; <i>industry versus inferiority</i>	The child enjoys working on projects and with others and tends to follow rules competition with others is keen, and forming social relationships takes on greater importance

Ages 12 to 19; <i>identity versus role confusion</i>	Changes in the child’s body are taking place rapidly, and the child is preoccupied with how he looks and how others view him; while trying to meet the expectations of his peers, he’s also trying to establish his own identity
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Cognitive development

Jean Piaget (1969), a Swiss psychologist develops theories that can be used as a basis for thinking to understand how a child thinks. In his theory, Piaget stated that a person’s actions in adapting and organizing the perceived environment signify the cognitive or intellectual development of the individual. Cognitive development develops through four stages where each stage of development achieved is the result of a previously constructed structure. The stages of development achieved from relatively simple capabilities to very complex operations, can be seen in the box. 3-11 (Hockenberry et al., 2017).

Box 3-11. Cognitive Development

Sensorimotor (Birth to 2 years old)	Child progresses from reflex activity, through simple repetitive behaviors, to imitative behaviors. Concepts to be mastered include: a) <i>Object permanence</i> —the understanding that objects and events continue to exist, even when they can’t be seen, heard, or touched directly b) <i>Causality</i> —the relationship between cause and effect c) <i>Spatial relationships</i> —the recognition of different shapes and the relationships between them (for example, placing a round object in a round hole).
Preoperational stage Starts at age 2 and ends around age 7	Marked by <i>egocentricity</i> (the child can’t comprehend a point of view different from his own). It’s a time of magical thinking and increased ability to use symbols and language. Concepts to be mastered include: • <i>Representational language and symbols</i> —re-presenting a reality into internal knowledge through language acquisition, using symbolic play such as riding a broom like horse • <i>Transductive reasoning</i> —generalization to the extent that items that share characteristics are labeled the same.
Concrete operational stage (Ages 7 to 11),	The thinking process is more logical and coherent, starting to be able to solve problems with inductive reasoning but not yet being able to think abstractly. Children solve problems by gathering facts from specific experiences which are then

	used as a basis for drawing general conclusions about a situation.) At this stage, the child's ego begins to decrease. Concepts to be mastered include sorting, ordering, and classifying facts to use in problem solving.
Formal operational thought stage (Ages 11 to 20)	Adolescents can think abstractly, have good adaptability, form logical conclusions from their observations, and establish and test hypotheses. At this stage adolescents have abstract ideas and concepts, possibilities, inductive and deductive reasoning has been complex

Psychosexual Development

According to Sigmund Freud's (1933) psychosexual theory, physical, emotional, cultural conditions in society are factors that influence the development of individual sexuality. This sexuality is part of the total person, which develops over time as shown through a person's attitudes, feelings, beliefs, and self-image. This theory states that sexual feelings have been formed from newborn to adulthood (Boxes 2-12). Every human being has rational intelligence and rational desire. All human behavior is energized by psychodynamic forces, and this psychic energy is divided among three components of personality: the id, ego, and superego (Hockenberry et al., 2017).

Sigmund Freud (1933) through his psychosexual theory states that every individual has three entities, namely:

- 1) The *id* the largest portion of the mind, is the center of our primitive instincts and requires immediate gratification, the neonate is the epitome of the id.
- 2) The *ego* develops in infancy and is the conscious, rational part of the personality; it's less inward seeking than the id, and recognizes the larger picture. The ego acts as a censor to the id; if there's conflict between the id and the ego, neuroses may develop.
- 3) The *superego* represents the person's conscience and ideals; therefore, it's in continuous battle with the id.

Five Stages of Development

Five stages of development according to Freud proposed five stages of development; these stages center around the early years of the person's life and the parent-child relationship. At each stage, sexual energy, what Freud called *instinctual libido*, is focused on a different area of the body.

This theory divides each stage of development according to age, where at each age stage the child must complete his developmental task with all the obstacles felt by the child (Box 3-12). If the child can complete a stage, it means that the child can continue to the next phase with a higher age level. If the child is unable to complete a stage, the child will remain at that stage and cannot advance to the next stage. In each stage passed, children feel satisfaction individually. Satisfaction must be achieved before one can proceed to the next stage.

Box. 3-12. Psychosexual Theory (Sigmund Freud's., 1933)

Oral stage (birth to age 1)	Oral stimulation provides sexual satisfaction, reduces tension, examples: sucking, biting
Anal stage (Ages 1 to 3)	The child enjoys pleasure in the anal area and urethra. Children start practicing toilet training
Phallic stage (ages 3 to 6),	The child is attracted to his genitals and can distinguish between the male and female sexes. Children prefer parents of the opposite sex because they consider parents of the same sex to be rivals known as oedipal (boys) and Electra (girls).
Latency period (ages 6 to 12)	The child develops his abilities, concentrating on playing and learning. Children form groups with children of the same age and of the same sex. Energy center on physical and intellectual pursuits.
Genitalia stage (ages 12 and older),	The production of sex hormones is intense and the maturation of the reproduction system achieves. The adolescent develops the capacity for object love and maturity.

Moral Development

In his theory, Lawrence Kohlberg describes moral reasoning (the foundation of behaving ethically) are based on the work of Piaget and the American philosopher John Dewey. According to him, when born every individual lack ethics, morals and honesty. Ethics, morals and honesty are formed from the family and wider society. The family and society at large play a role in shaping individual moral values as well as the ability to reason a sense of right and wrong. The maturity of the child's intelligence and ability to interact is influenced by the moral behavior of the adults

around him. Children will adopt adult behavior as long as children interact with adults; he felt that development could be promoted through formal education. According to it's important to present a person with moral dilemmas for discussion, which helps him see the reasonableness of the next higher stage and progress toward it. Kohlberg based this discussion approach on the insight that a person develops as a result of cognitive conflicts in his current stage.

Kohlberg argues that moral dilemmas need to be discussed in a way that presents someone who has a moral dilemma. Discussing moral dilemmas directly with individuals who experience moral dilemmas will make it easier to learn views about moral decisions that should be, help the individual to see moral fairness in society and work forward to shape that behavior. This theory states that cognitive conflicts faced by a person can make the individual have good moral formation.

Three Levels of Moral Development

There are three stages of moral development of each individual. The child can enter a new stage if the child successfully passes the previous stage.

- 1) Preconventional level of morality. This level is reached by the child at the age of 2 to 7 years. Children learn to follow rules set by adults who have authority and adjust their behavior according to good and bad and to right and wrong.
- 2) Conventional level of morality. Aged 7 to 12 years, the child seeks conformity and loyalty. Children try to be individuals who obey existing rules and show behavior supporting, justifying and maintaining social values that exist in the family and surrounding community.
- 3) Postconventional autonomous level of morality. At the postconventional level (ages 12 and older). At this stage the child has reached adolescence. Adolescents strive to construct a personal and functional value independently of authority figures and his peers.



Figure 3-4 Head control while pulled to sitting position. A, Complete head lag at 1 month old. B, Partial head lag at 2 months old. C, Almost no head lag at 4 months old.



Figure 3-5 Head control while prone. A, the infant momentarily lifts the head at 1 month old. B, The infant lifts

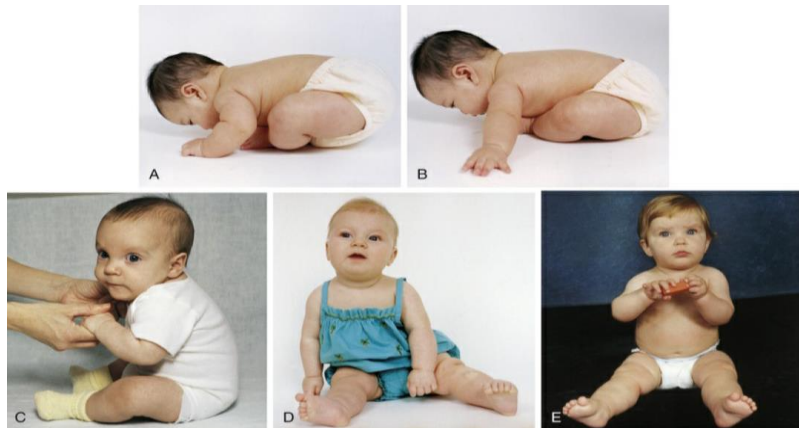


Figure 3-6. Development of sitting. A, the back is completely rounded, and the infant has no ability to sit (Hockenberry et al., 2017)

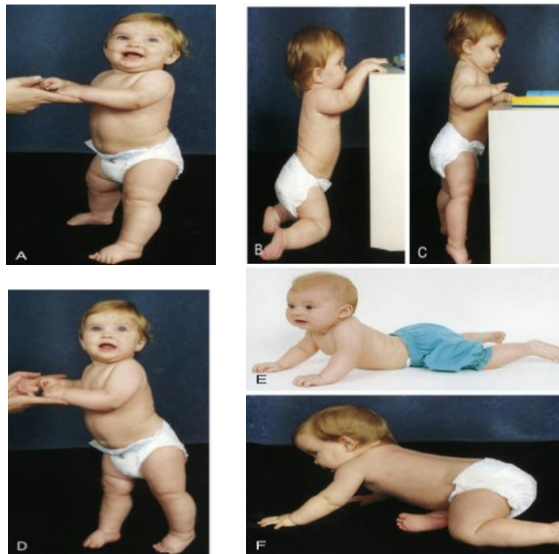


Figure 3-7 Development of locomotion. A, The infant bears full weight on the feet by 7 months old. B, the infant can maneuver from a sitting to a kneeling position. C, the infant can stand holding on to furniture at 9 months old. D, while standing, the infant takes deliberate step at 10 months old. E, the infant crawls with the abdomen on the floor and pulls self forward at about 7 months old and then creeps on hands and knees at 9 months old (F). (Photos by Paul Vincent Kuntz, Texas Children’s Hospital, Houston, TX.) (Hockenberry et al., 2017)



Figure 3-8 Crude pincer grasp at 8 to 10 months old. (Photo by Paul Vincent Kuntz, Texas Children’s Hospital, Houston (Hockenberry et al., 2017)

Speech and Language Development

At the beginning of life, an individual expresses his feelings and desires by crying. Crying is a verbal communication ability possessed at the infant age stage. Crying as a biological sign, the baby's way of conveying messages of urgency and signals of discomfort, such as feelings of loneliness, hunger, pain, cold and so on. In addition to serving to convey their needs, crying is also a social event that affects the development of the parent-infant relationship — when a baby does not cry usually has a positive effect on parents where parents feel that the baby is comfortable, or when the baby cries as a marker of discomfort that can evoke a negative parental response. When a baby cries, it can also be interpreted as a signal or persuading parents to serve their physical or emotional needs. In the first weeks of life, crying has reflexive qualities and is mostly related to physiological needs. Babies cry for 1 to 1.5 hours a day until 3 weeks of age and then develop to 2 to 4 hours at 6 weeks of age and then will decrease after reaching 12 weeks of age. In the first few months often parents feel confused because babies can cry for no apparent reason, allegedly this occurs due to the process of energy release and the process of maturity of the central nervous system. At the end of the first year, babies cry to attract the attention of parents; the baby shows a feeling of fear of strangers; feelings of frustration as a result of their developed but inadequate motor skills.

Changes in vocalizations begin to form whereby When a baby cries, the cry becomes syllables and words (for example, “mama” is heard when crying loudly). Babies vocalize as early as 5 to 6 weeks by making small hoarseness sounds. At 2 months of age, they make single vowel sounds, such as ah, uh, and uh. At 3 to 4 months of age, the consonants n, k, g, p, and b are added, and the baby roars, gurgles, and laughs loudly. At the age of 6 months, they imitate sounds; add the consonants t, d, and w; and combining syllables (for example, “tata”), until by 10 to 11 months the baby does not yet understand the meaning of the word. From 9 to 10 months of age, the child understands the meaning of the word “no” and obeys simple commands. By the age of 1, they can pronounce 3 to 5 words with meaning and can understand as many as 100 words. Because language development is based on expressive skills (the ability to make thoughts, ideas and desires known to others) and receptive skills (the ability to understand spoken words). Adults should provide speech stimulation to the baby, invite the baby to communicate to improve his

language skills. Infants who experience speech difficulties according to their age stage should be evaluated carefully because this can be a sign that the child is at risk for hearing function (Hockenberry et al., 2017)

Fine Motor Development

Actions that use the fingers are one example of fine motor behavior. Fine motor behavior is shown through the activities of fingers grasping certain objects, pinching beads, holding pencils, crocheting and so on. The fine motor skills of children 2 to 3 months are grasping, which is initially a reflex activity then gradually becomes voluntary. In infants aged 1 month, the condition of the hands is more often closed while at the age of 3 months generally the condition of the hands is open. In this age range, babies always seem to want to grasp objects they see and when objects or toys are placed in the hands, babies will actively hold them. Babies have the ability to grasp objects well at the age of 5 months.

At the age of 6 months, the baby's grasping ability increases and the baby is increasingly happy to grasp objects. Children will grasp objects around them such as combs, cups and others. Children also learn to direct objects they hold, for example holding their own feet and pulling them towards the mouth, or grasping crackers and putting them in the mouth, so that at this stage children are good at eating bread or crackers independently. Fine motor skills continue to develop, where at the age of 7 months, children are able to move objects they hold to other hands and grasp objects simultaneously in each hand. The child is able to hit two objects in his hand. At this point, the child grasps using all fingers, and gradually, the palmar grip (using the whole hand) is replaced by a clamping grip (using the thumb and index finger). At the age of 8 to 9 months, coarse clamping movements are formed and after 10 months of age, the ability increases to a neat enough pincer to pick up raisins and other finger food (Figure 2-8). They can intentionally release an object and offer it to someone. At the age of 11 months, they put objects in containers and like to take them out. At the age of 1, the baby tried to build a two-block tower but still failed.

Gross Motor Development

Head Control Full-term newborns can momentarily hold their heads in midline and parallel when their bodies are suspended ventrally and can lift and turn their heads from side to side when they are prone (see Figure 2-9). This is not the case when infants are lying prone on a pillow or soft surface; infants do not have the head control to lift their heads out of the depression of the object and therefore risk suffocation in the prone position early in infancy. Marked head lag is evident when infants are pulled from a lying to a sitting position. By 3 months old, infants can hold their heads well beyond the plane of their bodies. By 4 months old, infants can lift their heads and front portion of their chests approximately 90 degrees above the table, bearing their weight on the forearms. Only slight head lag is evident when infants are pulled from a lying to a sitting position; and by 4 to 6 months old, head control is well established (Figs. 3-4 and 3-5).



Figure 3-9. Head control in an infant. A, Inability to hold the head erect when pulled to sitting position. B, Ability to hold the head erect when placed in suspension (Hockenberry et al., 2017)

Toilet Training

Toddlers have many demands to adjust to the environment, one of the main tasks is toilet training. Toilet training teaches children to recognize signals for urinating and having a bowel movement and learn to use the toilet (toilet seat) correctly when the sensation is felt by the child. The ability to control the anal sphincter and urethra is achieved as soon as the child is able to walk, estimated at 18 and 24 months of age. The ability of toilet training is also influenced by complex psychophysiological factors

for children's readiness to do it. The readiness of children in toilet training is characterized by their ability to recognize the urge to release and hold and be able to communicate these sensations to parents. Parents need to provide motivation to increase children's readiness to do toilet training. Children will try to please parents and learn to fulfil parents' wishes to do toilet training well. Cultural beliefs can also influence the age at which children show readiness (Hockenberry et al., 2017). If the child is unable to control the desire for urinary elimination (nocturnal enuresis) it can cause major problems. Problems that occur due to parents having to wash, clean and buy soap constantly. The increase in costs due to buying soap or buying diapers constantly causes expenses to increase. Bedwetting at night during sleep causes children and parents to feel frustrated (Bulut, 2019).

Research conducted by Lundblad et al., states that at the age of five to six years, some children do not like to go to the toilet at school for reasons of anxiety due to toilet cleanliness that is not guaranteed. In this age range, there is also an increase in cases of children's visits to primary care due to problems in the urinary and digestive tracts. Long queues in school toilets are also a problem so often children decide to resist the urge to urinate or bowel elimination. Privacy during elimination is a need for every child, but queues outside the toilet cause children to feel uncomfortable during elimination causing anxiety (Lundblad et al., 2016) In the 1920s, children learned toilet training at the age of 12 months, in the 1960s, toilet training was taught to children after the age of 21 months and at this time children toilet training at the age of 36 months. This shift in toilet training time is thought to occur due to the use of disposable diapers.

Research on preschool children (Early Childhood Education) found differences in toilet ability between children who use diapers (diapers) and children who do not use diapers. Children who use diapers experience delays in toilet ability because the use of diapers makes children unable to feel damp after urinating (Munjiati et al., 2017). The Greek version of VABS-II is an appropriate scale for assessing adaptive behaviors in a Greek context, as it meets the standard of the original version of VABS. This scale was found to be acceptable, understandable, valid and reliable by Greek parents and may thus be used in cross-cultural clinical practice and research. Night time bladder control normally takes several months to years after daytime training begins. This is because the

sleep cycle needs to mature so that the child can awake in time to urinate. Indicates that bedwetting is normal in girls up to 4 years old and in boys up to 5 years old. Before the child reaches maturity in the sleep cycle, the child is not able to wake up at the right time when the sensation of urination arises at night. A child's ability to exercise bladder control at night can occur for years after daytime urination practice (Onubogu & West, 2022). To avoid this, nurses have an important role to help parents identify the right time for their child to do toilet training. In general, girls have earlier maturity to do toilet training compared to boys (Hockenberry et al., 2017).



Figure 3-10. Sitting in reverse fashion on a regular toilet provides additional security to a young child (source: personal photo)

Figure 3-11. Children may begin toilet training sitting on a small potty chair. Source: Children Health, 2021 (Hockenberry et al., 2017)

After the child is able to master the stages of toilet training well, the child will feel proud and full of confidence, repeating every toilet training step when there is a sensation for urinary elimination or bowel elimination. Children feel a sense of satisfaction when they are able to do every stage starting from undressing, entering the bathroom, flushing the toilet before use, doing elimination, flushing and washing hands with soap, drying the buttocks and putting clothes back on. The satisfaction and pride felt by children will encourage them to do it repeatedly and continuously until they form new positive habits. Parents need to give encouragement, encouragement and praise to children when they are able to go through the stages even though they are not perfect. Praise

given by parents can encourage children to achieve better toilet training skills.

Neurologic Maturation

Neurological maturation occurs rapidly while the fetus or child is still in the womb. The rapid increase occurs in two periods, namely at the 15-20th week of pregnancy there is an accelerated increase in the number of neurons and at the 30th week of pregnancy until the age of 1 year after birth. Infant growth occurs very quickly during childhood and tends to slow down after entering adolescence.

Physiologic Changes

The body has basic needs that must be met absolutely, namely metabolism, temperature, meeting the needs of rest and sleep. Throughout childhood, there is a change in the basal metabolic rate (BMR) typical of resting bodies. The highest basal metabolism occurs in newborns, because BMR is strongly influenced by the proportion of the baby's body surface area to body mass. This basal metabolism will decrease as body size increases, the proportion decreases progressively until maturity. In boys, basal metabolism is slightly higher than in girls and further increases during pubescence over that in girls. The high basal metabolism determines the metabolic rate and the number of calories the child needs. The baby's basal energy requirement is about 108 kcal/kg body weight and decreases to 40 to 45 kcal/kg by adulthood. Water requirements throughout life remain about 1.5 ml/calories of energy expended. There are changes in energy needs in children at every stage of their age. In childhood, it takes a lot of energy to build body tissues continuously to achieve height and weight according to the child's growth curve in general. At certain times children need extra energy in short periods, for example when children exercise, or for long periods for example; when the child suffers from an illness. Energy needs are higher in long periods than in short periods because in long periods, extra energy is needed throughout the day during the child's illness until the end of the recovery period.

Each degree of fever increases the basal metabolism 10%, with a correspondingly increased fluid requirement. Temperature Body temperature, reflecting metabolism, decreases over the course of development (see inside back cover). Thermoregulation is one of the

most important adaptation responses of infants during the transition from intrauterine to extrauterine life. In healthy neonates, hypothermia can result in several negative metabolic consequences, such as hypoglycemia, elevated bilirubin levels, and metabolic acidosis. Skin-to-skin care, also referred to as kangaroo care, is an effective way to prevent neonatal hypothermia in infants. Unclothed, diapered infants are placed on the parent's bare chest after birth, promoting thermoregulation and attachment (Galligan, 2006). Beginning at approximately 12 years old, girls display a temperature that remains relatively stable, but the temperature in boys continues to fall for a few more years. Females maintain a temperature slightly above that of males throughout life. Even with improved temperature regulation, infants and young children are highly susceptible to temperature fluctuations. Body temperature responds to changes in environmental temperature and is increased with active exercise, crying, and emotional stress. Infections can cause a higher and more rapid temperature increase in infants and young children than in older children. In relation to body weight, an infant produces more heat per unit than adolescents. Consequently, during active play or when heavily clothed, an infant or small child is likely to become overheated.

Nursing Alert

Children who experience increased body temperature will require more fluid needs. An increase in body temperature of 1° will increase basal metabolism by 10% and followed by an increase in body fluid requirements.

Temperature

Body temperature describes the high and low metabolic rate of the body. Thermoregulation is one of the most important adaptive responses that occur during the transition from intrauterine to extrauterine life. Hypothermia in healthy newborns can cause negative effects, such as decreased blood sugar levels (hypoglycemia), hyperbilirubin or increased levels of bilirubin in the blood, and metabolic acidosis. An effective way to prevent hypothermia in newborns is to treat kangaroo methods, namely the practice of skin-to-skin contact care between mother-baby or babysitter. Babies only use diapers and are not dressed placed on the mother's bare chest, with the aim of neutralizing the baby's body temperature through coolie-to-skin attachment (Purwaningsih & Widuri,

2019). In girls, body temperature remains relatively stable until reaching the age of 12 years, in contrast to boys who experience a continuous decrease in temperature until several years later. Throughout the life cycle, women's body temperature is slightly higher than that of men. It is necessary to control the stability of temperature in infants because babies are susceptible to fluctuating temperature changes, because the baby's body is sensitive in responding to changes in the temperature of the surrounding environment and will increase quickly when crying, stress, emotions and doing active movements. In addition, infants and children who have infections are particularly susceptible to rapid and higher temperature increases than older children, because infants and younger children produce more heat per unit than adolescents.

Sleep and Rest

Sleep is an important need of the body, protecting the body as a function of tissue repair and restoration after doing activities throughout the day. The number of hours of sleep each child gets varies in different age groups. Newborns have a long sleep time because they are not too busy doing other activities including eating. Total sleep time will decrease as the baby gets older. Babies have a longer time to stay awake and they sleep longer at night (Mukundan et al., 2022) During the latter part of the first year, most children sleep through the night and take one or two naps during the day. By the time they are 12 to 18 months old, most children have eliminated the second nap. After age 3 years, children have usually given up daytime naps except in cultures in which an afternoon nap is customary. Sleep time declines slightly from 4 to 10 years old and then increases somewhat during the pubertal growth spurt. The quality of sleep changes as children mature. As children develop through adolescence, their need for sleep does not decline, but their opportunity for sleep may be affected by social, activity, and academic schedules.

Family and Child Development

A closer look at the family

Family is defined as the structure, or the relationship between individuals, that provides the financial and emotional support needed for social functioning. Family is also defined as relationships between individuals formed through marriage, childbirth, adoption, where each other maintains common social and cultural functions, supports each

other financially and maintains the physical, mental, emotional and social development of each member.

Nuclear family

The nuclear family (also known as the traditional family) consists of father-mother and child (biological or adoptive). The nuclear family serves as a support system for its members, where each individual has roles and responsibilities as well as financial obligations. One of the disadvantages of the nuclear family is the absence of other sources of financial support in times of crisis.

At this time more binuclear families are found, which is when parent divorce and remarry, in other words, the formation of a new family after divorce occurs in the nuclear family. In binuclear families, parents share custody and care of children so that the child becomes a family member of two nuclear families. A binuclear family consists of each parent and their new spouse, sharing custody and raising children. Every couple has their own household where children spend their time. The child may have to learn two rules that can sometimes be very confusing for the child. Binuclear family where the father or mother turns into a single parent.

Blended Family

Blended Family is a family consisting of widowers or widows (due to divorce) who remarry and raise children from marriage or from previous marriages. Blended Family provides emotional support and makes it possible to share roles in the household. It also provides opportunities for family members to learn how to work together and find new ways to accomplish tasks

The problem that often occurs in this family structure is financial responsibility. Tension in the family can occur when one partner gives support to the previous spouse or when financial responsibilities are large after the children are adults.

Family Cohabitation

Family Cohabitation is a family where two adults and children live together as a nuclear family while adults remain unmarried. This type of family provides emotional and financial support to its members. The risk

of cohabitation family structure is a feeling of threat due to the lack of commitment of one partner whether it occurs real or not.

Extended Family

Extended family (multigenerational families) include at least one parent; A child and grandparents, aunts, uncles, or cousins. In this family structure, all family members provide support. Potential conflicts occur due to roles; confusion in adults who are seen as the child's mother or father, or who should make decisions regarding the child's care.

Single-Parent Family

Single-parent family is a family structure consisting of one parent (widow or widower) and their children who live in the same house. The increase in divorce rates of the single-parent family is becoming more common. In a single-parent family, the parent and child are each other's source of support. This can create close bonds but can also lead to strain for the single parent in terms of the parental role he or she plays. If a child becomes ill, childcare difficulties may arise. There may also be financial constraints related to limited income. Single parents can become exhausted from being responsible for all the tasks of raising children. Single parenting can also lead to low self-esteem, as parents try—and sometimes fail—to provide the child with everything that multiple families with two parents to provide.

Communal Families

In communal families, adults and their children choose to live with a group of people (not relatives) who become extended families. The relationship is usually one of religious beliefs or social values. The parent usually relinquishes the role of parent, and the group leader makes decisions for the child. The disadvantages of this family structure include the tendency to provide medical care in groups rather than seeking outside professional help for health-related matters.

Foster Family

Foster families are designed to care for children whose biological or adoptive parents are unable to do so. Foster parents may or may not be related to foster children. If the foster parent is related to the child, placement is generally referred to as kinship care. Ideally, care is provided on a temporary basis until the biological or adoptive parents can resume

their role. Unfortunately, foster children can be moved from foster family to foster family, lacking the stability of coming from the same family (biological, adoptive, or foster care) for extended periods of time. It can also be difficult to determine who is responsible for making decisions about foster care children.

SUMMARY

Growth is the increase in the number and size of cells during the process of cell division and the process of new protein synthesis, which impacts increasing the number and weight of one part of the body or the whole body. Development is a process of gradual change or improvement of abilities, increasing capabilities from simpler to more complex and increasing individual capacity in line with the environment's growth, maturation, and learning processes.

Healthy children experience age-appropriate stages of growth and development. Child development patterns are generally known as cephalocaudal, proximodistal, and general to specific. Children's abilities are grouped into four sectors: fine motor, gross motor, speech, and language, socialization, and independence.

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REVIEW QUESTIONS

Choose the most appropriate answer

1. Growth and development in the early stages determine further development. It is meaningful

 - A. Before a child can walk, he must be able to stand first
 - B. Each child's growth and development is individual;
 - C. Every time there is an increase in structure, there will be a change in function
 - D. Developmental patterns are cephalocaudal and proximodistal
 - E. The speed of growth of each child is different

2. A child's development takes place from a general stage to a specific stage (specific) and occurs continuously, that is to say.....

 - A. growth can be predicted
 - B. development is the result of a process
 - C. developmental patterns can be predicted
 - D. development leads to change
 - E. growth of early-stage development determines subsequent development

3. *Denver Development Screening Test* (OOST) is one of the tests to assess.

 - A. Growth
 - B. Development
 - C. Fine motor

- D. Gross motor
 - E. Language Skills
4. If obtained, at least 2 *cautions* or at least 1 *delay* (in one sector). Therefore, the assessment results include classification....
- A. *Delay*
 - B. Normal
 - C. Abnormal
 - D. Doubtful
 - E. *Unstable*
5. The assessment result is normal if it meets the following criteria.....
- A. Maximal 1 caution
 - B. Reject > 1 item area 75%-90%
 - C. If in 1 sector, 2 delays/more is obtained.
 - D. If obtained 2 or > *delays*, in 2 or more sectors
 - E. When there is a rejected score of 1 or more items to the left of the age line



CHAPTER 4

THE CONCEPT OF PLAY

INTRODUCTION

Children's primary task during development is play. Playing is the dominant activity performed by children during the waking period. It offers pleasure and facilitates optimal growth and maturity of their developmental abilities. Through this task, children can experience better communication.

KEY TERMS

1. Play

LEARNING OBJECTIVES

After completing this learning activity, it is expected to be able to:

1. Explaining the Concept of Play
2. Explaining the Types of Games
3. Explain the Concept of Educational Game Tools
4. Explaining the Benefits of Play in Children
5. Applying Play Techniques to Inpatient Children

A. Concept of Play

Technological advances today allow children to learn various game media very broadly and without limits. Children can learn it without having to get guidance from anyone. The various things they learn about their world and how to deal with situations, time, space, structures, and societies in their natural and virtual circles. They learn about how big their role and their involvement in the processes that occur in the community and what impact they have done on the surrounding environment. Through play, they learn to adapt to the current conditions of society,

learning how to interact in various situations. Play is as much a primary developmental task for children as for adults. Play facilitates children to practice solving complicated and challenging things, including learning good communication techniques to interact optimally with others and foster satisfying relationships in their environment. Play activities provide a picture of children's physical abilities, intellectual intelligence, emotional intelligence, and social abilities.

Play is a suitable medium for children to learn new words' meanings, talk to strangers, and adjust to a new environment. Learn to be sportsmanlike by following game rules such as timing, spacing, and sound (Hockenberry et al., 2017). In addition, during play activities, children will explore their intellectual abilities and realize them in an activity, expressing their ideas and ideas in different ways. Ideas and ideas can be expressed by practicing their skills, for example, forming miniature objects, expressing thoughts and feelings through role-playing, creating game rules, being a leader in a game, and acting as an adult.

Play Functions in Development

Play provides fun for children, relieves boredom, and lowers stress in children. Play becomes a basic need for children, like food, nurturing, rest, and affection. Play can provide many benefits, including stimulating sensory-motor development, speech, and language development, creativity, socialization skills and independence, self-awareness, recognition of values and morals, and being useful as therapy that can accelerate the healing process.

a) Sensorimotor Development

A major component of play at any phase of a child's development is sensorimotor activity, especially in infancy. Sensorimotor play activities are called active play, where children will use large and small muscles to stimulate the increase in muscle ability and function as a means of releasing surplus energy that has a negative impact if not released. The sensory-motor activity gives babies a sense of themselves and their new world through touch, hearing, visual, and kinesthetic stimulation. Sensorimotor activity is enjoyed at toddler and preschool age by dancing and having fun by moving limbs and exploring objects around them, such as flowers, animals, and extraterrestrial objects.

In school-age children, this activity is indicated by running, climbing, jumping, and moving the body for excitement alone, while in larger groups of children, sensorimotor activity has been modified into more complex movements following specific rules such as playing bicycles, racing, running race, roller skating, hide and seek and others. In the adolescent age group, sensorimotor activity decreases and becomes more focused. For one example of this game, see Figure 4-1.



Figure 4.1. Kids playing bicycle racing (source: personal photo)

b) Intellectual Development

Children with good intellectual abilities will find exploring and manipulating a game easier. Children will learn different colors, shapes, and sizes, the density of an object, and the fundamental differences between various objects. Children learn numbers and how to calculate, learn to describe an object using their sentences, describe an abstract object so that it can be understood, and mention opposites such as bottom-up, top-down, hot-cold, cold-hot, black-white, and white-black. Solving puzzle fillings is very good for improving children's ability and skills in solving problems. Play media such as picture storybooks, animated films, and various educational game tools will increase their knowledge and provide unique fun for them. Play allows children to distinguish between the virtual and the fantasy world more easily with the real world where they live.

c) Socialization



Figure 4-2 Children playing with other children

Play activities are an excellent means for children to practice their socialization skills. Socialization abilities are formed when an individual meets another individual. Social contact is first felt by babies when the presence of other people in their world generally occurs between mother and baby. In the next phase, children will socialize with other children through play activities. Socialization skills are increasing in toddlers, where children begin to try to play and socialize with their peers. Games that toddlers often do role-playing, for example, acting as a doctor, acting as a teacher, girls playing mothers and sons playing fathers, and so on. Preschoolers begin to realize peer interests, so it is easier to socialize with their groups. At this age, children prefer to learn with peers rather than learn from adults (Figure 4-2).

d) Creativity

Play is the best means and opportunity for children to shape and increase children's creativity. Through playing activities, you will develop creative ideas by experimenting and trying various game ideas using their game tools. Creative ideas are formed using raw materials or game tools and through the ability to fantasize and explore the results of thought. Group play can inhibit creativity if the group does not agree with the

ideas given, but it also has a positive impact when children listen to various ideas from group friends, stimulating the ability to explore these ideas in a way alone further. Children will enjoy the satisfaction of being able to modify certain objects into different objects or create something new. Ideas, interests, and creativity will be transferred from situations outside the world of play to the real world.

e) Self-Awareness

Play activities facilitate children to find and develop their self-identity. This process begins with active exploration of the body and realizing that they have separated from the mother. Play takes children into new worlds and spends a lot of time with others outside the home. Children will learn to recognize themselves, where they are, and the environmental conditions in which they live. This encourages an increase in children's ability to regulate their own behavior and attitudes, be aware of their abilities and limitations, and compare their capacities with those around them. Children can recognize and assess their abilities, try out various roles, learn the impact of their actions on others, and assume themselves through play. Children will learn their roles according to their sex and try to behave according to their gender, for example; girls tend to behave more gently than boys, girls prefer stuffed toys to car racing toys, and so on (Hockenberry et al., 2017).

Therapeutic Value

Play provides fun and is therapeutic at all age levels. Children can express emotions and release impulses that they cannot personally accept but are socially acceptable through play. Children experiment and test scary situations in the real world, study environmental situations, and try to assume them. Children learn to fulfill their roles and positions in play when unable to express them in the real world. Children describe everything about themselves and what they want, express everything in their minds, learn to manage emotions and fears, act as anything, talk about everything in a series of games, and express desires and goals through gestures when experiencing limited speaking skills. Children need adults to facilitate the play activities they do in a way; Gives ample time, acceptance, and appreciation for everything they do to control aggression and channel destructive behavior. Play makes children feel happier and

more comfortable so that the tension and stress they experience in each phase of development can be controlled properly.

Morality

Playing with children has stricter rules than the rules of playing with adults. The rules and values developed during play contribute greatly to the exercise and moral development of the child. During the play activity, each child must abide by moral standards and codes of conduct that exist in the game, and if the child violates it will be penalized. The enforcement of rules, moral standards, and values are enforced very rigidly during group play activities. If the child wants to be accepted as part of the playgroup, then the child must obey all the rules (for example, be honest, fair, sportsmanlike, self-controlling, and not easily angry). Play teaches children about right or wrong because, in games, there are rigid rules that must be obeyed and must not be broken.

Classification of Play (Khadijah, 2017)

Based on the stages of development, children's play patterns are categorized based on content and social character. Playing based on content and social character has additive effects: both are developed through stages of abilities that the child has had before. Some elements experience an increase where old elements are replaced with new experiences, but certain elements are retained throughout life. When children undergo new stages of development, playing at the new stage dominates all children's activities.

Content of Play:

Content-based play predominantly involves the child's physical abilities, although social relationships cannot be ignored (Figure 4-3). The abilities that children learn from the content of play are game techniques in general following the trend of simple games to more complex games, such as:



Figure 4-3. Children play with parents

1) Social-affective play

Social-affective play is an entertaining game for babies where in this type of game interpersonal relationships with others are very fun. When children play together with parents, children enjoy relationships when parents give touches, hugs, talk in funny voices, and babies respond as a sign of their activeness in the game. One of these types of play is playing “ci... luk... baaaa”. The baby will respond through rapid foot and hand movements, laughter, a big smile, or with a shrill voice as a sign of happiness (Figure 4-4). In this game, babies and parents will show reactions according to the stimuli of each party, and at this stage, the baby learns how parents respond to the stimuli he gives and adopts them as new abilities.



Figure 4-4 Babies smile happily when invited to play

2) Sense-Pleasure Play

This type of game does not facilitate children to practice socialization skills because children tend to enjoy stimuli from objects or without objects. Forms of stimuli, such as light and color, taste and smell, texture, and consistency, will stimulate the child's senses, attract attention and provide pleasure. In addition, children can also enjoy games by using raw materials (water, sand, food, pencils, paper), gestures (swinging, bouncing, rocking), and the use of other senses and abilities (smelling, humming). The characteristic of this game is that children feel increasingly engrossed in the game they do, so it is difficult to stop (Figure 4-5A dan 4-5B).



Figure 4-5 A. Child drawing; B. Children playing in the sand

3) Skill Play:

This game serves to improve children's skills by demonstrating and repeating continuously the abilities they just have. This game can be done after the baby can develop the ability to understand and manipulate. To achieve a new ability or skill, the child will try with a solid determination, repeating the game to get a skill (Figure 4-6). In the process of conquering elusive skills, often the child feels frustrated, feels failed, and dissatisfied. These games provide opportunities for children to achieve higher skills, for example, gross motor skills to fine motor skills. Examples: filling water into a bucket and transferring water into a bottle, holding a broom, and cleaning the floor.



Figure 4-6 Children learn to achieve new skills

4) Unoccupied Behavior

At any given moment, without a clear aim, the child is seen pacing back and forth, smiling, laughing, tiptoeing, hunching, playing with a chair, table, or whatever is around him. Children do not seem to do things based on a goal, but basically, children are focusing their attention on certain objects that might attract their attention. It is concluded that in this game, children do not use certain game tools but use situations and objects around them as game tools.



Figure 4-7 Children play using whatever is around the child

5) Dramatic or Pretend Play

This game, also known as symbolic or pretend play, was developed at the end of 11 to 13 months of age and became a favorite game of preschoolers. Once children have experienced how adults behave and how the environment plays a role in human life, they will pretend or fantasize about anything in various situations. Children act themselves directly in every event of daily life, children learn practice roles salah one family member. Children play driving cars, or swinging dolls, evolve into more complex and ongoing dramas. In preschoolers, children play a wider role in society, such as businessmen, policemen, shopkeepers, teachers, or nurses (Figure 4-8A and 4-8B).



Figure 4-8 A. The child acts like a businessman; B. The child acts like a mother cooking

6) Games:

Games and games are types of games that use certain tools using calculations or scores. This game can be played alone or with friends. Types of games that can be done alone include puzzles, solitaire, and computer or video games. Competitive games begin from preschool age. Children will try with every effort, even by cheating, changing the rules, and demanding exceptions and opportunities to win from opponents. At this age stage, children cannot accept defeat and feel very hateful if they lose a game. School-age children and teenagers love games with competition, such as card games, and chess, and physically active games, such as table tennis and wood jumping (Figure 4-9 A and 4-9B).



Figure 4-9A. Kids race on the slide



Figure 4-9 B. Kids' wooden jumping competition

Social Character of Play

Play is an activity that dominates children's daily activities and work activities in adults. During play activities, children more often need others, even if children can play alone. A pair of toddlers often engage in a great battle over one another. The child seeks to dominate, master, does not tolerate procrastination, and cannot compromise to meet his personal needs immediately. 5- or 6-year-olds begin to develop the ability to compromise, even if it is a final solution after the child tries on his own but fails. Conceptual development and continuous interaction with peers enhance interaction performance. Interaction with peers is becoming increasingly important for improving socialization skills, developing concern for others, and the ability to delay gratification or even reject gratification in order to appreciate others. These types of games are:

1) Onlooker play:

The child only observes his friend, who is playing, without any initiative to participate in the game. So, the child is passive, but there is a process of observation of the game that his friend is doing. In fact, children have an active interest in observing other children playing (Figure 4-10).



Figure 4-10. The child only observes

2) Solitary play:

During solitary play, children appear to be in a playgroup, but children play alone with the game tools they have and the game tools are different from the game tools used by their friends. There is no cooperation or communication with his playmates.

3) Parallel play:

During parallel play, children use the same game tools, but there is no contact between each other, so in this game, there is no socialization with each other. Children can be involved in creative crafts, and all children in the group work on a project, but each child works according to his wishes and does not interact with each other. Usually, this game is done by toddlers.

4) Associative play:

During associative play, children play together, and constantly communicate with each other but are not organized, have no leaders, and do not have clear goals to achieve together. Children lend each other toy materials, adjusting roles to the situation by deciding for themselves what they want to do. Examples of associative play are: playing with dolls, playing in the rain, using bicycles, and playing with cooking (Figure 4-11).



Figure 4-11 A. Children playing bicycle; B. Kids play with rabbits

5) Cooperative play:

During Cooperative play, all children must abide by pre-agreed rules. In this game, there is a leader and a clear goal. To achieve the goals of the game, the leader has a role in organizing and directing each child in his group to obey all the game rules and understand the sanctions that will be obtained if they do not obey the rules. Each group fights to win its group. These types of games are soccer games, table tennis, futsal, and various forms of competition games (Figure 4-12).



Figure 4-12. Toba Batak Traditional Dance Competition “Tor-Tor” for elementary and secondary school children in Samosir Island, North Sumatra.

Benefits of Play Activities in Children (Astuti et al., 2016)

1) Increase children’s creativity.

Creativity means that a person can act “create” and relate to his surroundings in a peculiar way, for example: playing trades; cooking; block play; color play; and so on.

- 2) Increase sportsmanship and honesty in children.
Play activities can hone these attitudes. For example, when playing soccer, every child must obey the rules and procedures determined before playing soccer activities occur. If, in the process of playing there is a child who cheats to achieve a victory, to become a champion, then the child will get sanctions from his group mates, for example, will be expelled from the ball game. The sanctions set provide signs that must be obeyed by all children who participate in the game, thus encouraging children to learn to build sportsmanship and honesty in themselves, both honest with themselves and others.
- 3) Fostering a positive sense of competition in children means that play activities will hone a positive competitive attitude in children.
- 4) Increase the child's self-confidence. Children who find it difficult to accept the success of their friends always accuse their friends of cheating when they lose and make negative or demeaning comments, but instead, make aggressive efforts so that other children recognize their achievements and work. These are signs of children who do not have self-confidence
- 5) Improve their problem-solving and thinking skills, especially when they encounter something challenging during play.
- 6) Induce positive emotions and increase self-confidence, especially when they win the game.
- 7) A good process for instilling positive programs into the child's subconscious mind.

Educational Game Tools (APE)

Educational game tools are tools that children use during play that can improve children's abilities. Educational game tools are diverse and have different functions. Through educational game tools, children can develop fine motor skills, gross motor skills, and speech and language skills and facilitate children to improve socialization skills and independence. Educational game tools can facilitate children's cognitive abilities and facilitate children with each other to get to know each other and play together. Capable educational play tools children use must be safe and not harmful to children, have sizes according to the child's age, and be attractive, simple, and easy to use (Damanik & Sitorus, 2019).

Below are some examples of educational game tools, namely:



Figure 4.13. A game tool for developing children’s gross motor is to play pulling carts



Figure 4-14. Game tools to develop children’s fine motoric skills, namely playing with blocks



Figure 4-15. Cognitive stimulation game tools



Figure 4-16. Game tools to develop speech and language skills



Figure 4-17. Game tools to develop self-help skills



Figure 4-18. Game tools to develop social behavior

In addition to facilitating children with various educational game tools, parents must also be directly involved in children's activities on certain occasions. For the game tool to achieve its function effectively, parents must understand how to use the game tool to interest the child in play better. Parents need to learn the operational techniques of educational game tools to achieve the purpose of using these play tools. Parents must be patient and should not force children to play because play is an activity that children do voluntarily and not because of coercion. Parents need to arrange the child's schedule of playing and remember the rest schedule, which is necessary for the child. Parents need to have patience while playing with children and provide limits on when play activities should be stopped. In addition to the role of parents as mentioned above, other roles in children's play activities are:

- 1) Motivate children to play so that children have more confidence and confidence in their abilities.
- 2) Supervise children during play to avoid injury to children during play, for example: falling, getting injured, and so on.

- 3) Acting as a partner in play. When parents are directly involved in playing with children, it will form familiarity and warm relationships and increase the child's ability to work well together. Parents and children work together to achieve goals through an agreement during play.

Play on those undergoing hospital inpatient

Play is a necessity for children both in health and illness. When the child is sick and undergoing treatment in the hospital, the child cannot carry out play activities as usual. During hospitalization, children will be separated from other children and do not have game equipment like at home. The importance of meeting the needs of play in children must be a concern for pediatric nurses so that children must be facilitated to carry out play activities even though they are hospitalized. The types of play activities and game tools children use are certainly different from those children use when healthy. Playing in the hospital aims to support the treatment process; therefore, it must meet the predetermined conditions:

- 1) Play activities should not be tiring for children. This type of play should give the child pleasure and use little energy to avoid fatigue.
- 2) The playing time is short. Sick children need a more extended rest period than healthy children; therefore, playtime is arranged to not interfere with rest time.
- 3) The types and tools of the game are simple. Simple games and tools do not use little energy, so children are not stressed.
- 4) Safe and avoid cross-infection. Game equipment must be clean and not harmful.
- 5) The type of game suits the age group.
- 6) Scheduling playtime.
- 7) Does not contradict therapy.

Advantages of playing in the hospital for children:

- 1) Improve the relationship between clients (children and families) and caregivers.
- 2) Programmatic play activities will restore feelings of independence in children.

- 3) Games for children in the hospital not only give a sense of pleasure to children but will also help children express feelings and thoughts of anxiety, fear, sadness, tension, and pain.
- 4) Therapeutic play will increase the child's ability to have positive behaviors.

SUMMARY

For children, playing is a necessity. Most of the child's time is spent with play activities. Playing with children does not only spend time, but in it, some functions are useful for their development. The function of play for children includes helping sensory and motor development, helping cognitive development, increasing children's socialization, increasing creativity, developing self-awareness, and developing moral values. In addition, playing also has a therapeutic function because by playing, children will feel comfortable and can relieve stress during treatment.

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REVIEW QUESTIONS

Choose the most appropriate answer

1. When playing, children will learn to explore and manipulate a game. Children learn the difference between one object and another, for example, differences in shape; color; Density; heavy, and others. Children also learn to count, describe objects they see or imagine using their sentences, describe their fantasies so that others understand, and so on. From the description above, what abilities are achieved by children through play activities?

- A. Sensorimotor Development
 - B. Intellectual Development
 - C. Socialization
 - D. Creativity
 - E. Self-Awareness
2. During play activities, children use large and small muscles to stimulate increased muscle ability and function to release surplus energy that has a negative impact if not released. Sensory motor activity gives them confidence in themselves and their new world. Children play through touch, auditory, visual, and kinesthetic stimulation. At toddler and preschool age, sensorimotor activities are enjoyed by dancing and having fun by moving limbs and exploring objects around them, such as flowers, animals, and extraterrestrial objects. From the description above, what abilities are achieved by children through play activities?
- A. Sensorimotor Development
 - B. Intellectual Development
 - C. Socialization
 - D. Creativity
 - E. Self-Awareness
3. When children do play activities, children will learn various types of colors, understand the shapes of various shapes and sizes, and understand various benefits of game tools used in games. What is the main function of this type of game for children?
- A. Helps cognitive development
 - B. Improves child socialization
 - C. Increases creativity
 - D. Develops self-awareness
 - E. Develops moral values
4. Various kinds of children's abilities can be trained and achieved as much as possible through play activities. Play is one of the fun learning activities for children. Playing can also increase a child's creativity because during playing, children will...
- A. Learn to regulate behavior and compare its behavior with the behavior of others

- B. Learn right and wrong from cooperative types of games such as playing soccer
 - C. Play together with friends
 - D. Play various types of game tools
 - E. Learn to create something from the game done
5. Below, which is included in Associative Play?
- A. Children laugh, tiptoe, slouch, stoop, pace back and forth, smile, play chairs, tables, or whatever is around them.
 - B. The child appears to be in the play group, but the child plays alone with the game tools he has.
 - C. Communication between one child and another child but not organized, there is no leader or who leads the game, and the game's purpose is unclear.
 - D. Children use the same game tools, but there is no contact between one child and another.
 - E. Children play alone using the game tools they like.



CHAPTER 5

COMMUNICATION, ANTICIPATORY GUIDANCE, AND IMMUNIZATION

INTRODUCTION

Children have limited communication skills, especially younger children. In addition to their limited ability to communicate, children are not able to express their feelings to others. Therefore, nurses must have good communication skills to communicate effectively with children. Nurses and parents play a role in improving children's communication skills and confidence. Good communication skills make it easier for children to interact with peers and parents. Especially in sick children, nurses should involve older children during the assessment and participate in decision-making. Children need to be prepared physically and mentally to undergo therapy; therefore, nurses must be able to establish effective communication with children. One of the nurse's communication skills is determined by how often the nurse communicates with children and family. Children have a high curiosity shown through the frequency of frequently asked questions to parents. The curiosity that develops very rapidly in children causes children to be at high risk of injury. Traumatic experiences are experiences that significantly affect the child's future development; thus, it is necessary to do anticipatory coaching. The growth and development of children who run fast are directly proportional to their susceptibility to disease. For this reason, parents must facilitate their children to get complete immunization, especially primary immunization from newborn to 12 months of age. Knowing the child's abilities is essential so nurses can professionally organize interventions and implementations to achieve quality nursing care.

KEY TERMS

1. Communication
2. Anticipatory Guidance
3. Immunization

LEARNING OBJECTIVES

A nurse needs to understand the basic concepts of communication, anticipatory guidance, and immunization in children according to the child's age stage. This aims to improve the ability of nurses to carry out nursing care practices in children according to the stage of growth and development. After completing this learning activity, it is expected to be able to:

1. Applying the Communication in Children
2. Applying the Concept of Anticipatory Guidance (Safety and Prevention of Accidents in Children)
3. Applying the Immunization

A. Communication

Interviews are the most commonly used professional communication technique. Interviews are a great way to explore the problem in detail, to get the necessary information. The interview conducted by the nurse focuses on the individual to find out communication skills, education level, problem-solving ability, problem-expressing ability, perception and culture, and others so that the nurse can plan communication techniques that are appropriate for the child and parents. Nurses need to develop skills in conducting interviews so that children and parents feel comfortable and cooperative.

Arrangements in Communication

1) Appropriate Introduction

When starting the interaction, after saying the greeting, the nurse must introduce herself by mentioning her name and status of existence in the job. After that, ask family members one by one to introduce themselves. Address parents or adults with a nickname such as "Mr." and "Mrs.", unless they want another greeting they like.

Ask for the parents' residential address and a contact number that can be contacted at any time. Ask for a nickname they like and write it down in a medical record.

Call by mentioning “Mr.” and “Mrs.” shows respect and appreciation for parents and it is very pleasant for them to remain valued (Ball et al., 2015). From the first visit, the nurse must actively involve the child to interact by giving compliments, asking for names, age and up to what level of education, and other information. What often happens is that nurses only involve parents during interactions and ignore children even when children are able to answer all questions given to them related to health problems they experience. This is a big mistake made by nurses, and nurses need to change communication techniques in a way that involves children actively in communication. Children are the main source of valid information because children are individuals who know exactly what they feel but this becomes difficult when children are not able to communicate verbally well.

2) Assurance of Privacy and Confidentiality

Communication can work well if the nurse facilitates a calm, comfortable environment and minimal external stimulation. To achieve quality communication, television, radio or mobile phones need to be temporarily disabled. The design of the environment facilitates the child to remain comfortable and happy so that the nurse can conduct interviews with parents. When the interview takes place and the child constantly disturbs his parents, there can be communication errors because parents do not concentrate fully on answering each question. In these conditions, parents prefer to give a short answer to immediately end the interview with the nurse. This can lead to errors in actions and a decrease in the quality of nursing care due to incomplete information from parents.

3) Confidentiality

Is an important component in communication. Information obtained during the interview may be provided to other members of the health team. In certain cases, for example in cases of sexual harassment that occur in students at school and the student has the potential to commit suicide, this information can be shared with teachers who are competent in solving problems. Parents and children need to know about Privacy restrictions. If confidentiality has the potential to cause bigger problems, then data confidentiality cannot be ensured.

4) Listening and Cultural Awareness

Communication can run effectively if it has one of the most important components, namely the ability to listen. Listening techniques are a sign that nurses value and want to understand children and parents as interlocutors. Listening is an active process that requires good concentration during listening to the interlocutor, including all aspects contained in the conversation both verbal, nonverbal and abstract. Noisy environments and premature judgment are the biggest obstacles to practicing listening skills. Listening to as much information as possible from parents or children, as well as clarifying information according to meaning are effective sources of information for maximum nursing intervention. Nurses should not react or perceive too early before listening to complete information from children and families.

5) Being Empathic

Empathy is a person's ability to put himself in someone else's shoes in order to understand what the other person feels. Empathy is different from sympathy, where the definition of sympathy is when someone has emotions or feelings similar to the emotions that others have

Communication in Children

The best communication technique to get all the in-depth information about the problems experienced by the family is through interviews. During interviews, verbal communication techniques are the most common part, so nurses are often more focused on talking to parents and ignoring children. The nurse should include the child during the interview; although the child has limited verbal skills, the child is the individual who knows best what he feels and what support he needs most. Babies, neonates, and toddlers should receive attention during the interview by occasionally giving praise or comments to them. It is important for preschoolers to be actively included in interviews to express their experiences and perceptions according to their perceptions. Sometimes the nurse may find establishing a direct relationship with the child challenging. Therefore the nurse needs to use communication techniques through a third person or communication techniques using particular toy objects; for example, When the child has a doll, the nurse can start communicating with the child by commenting on the doll the child has. The nurse can ask simple questions such as "How beautiful is

your doll? Who bought it?” or “Your doll is so attractive; have you given it a name?” The child will have the courage to communicate further regarding his doll by starting a conversation.

Box 5-1. Nursing Care Guidelines

Communicating with Children

- a) Provide a comfortable environment for the child by giving him time to enjoy a calm situation.
- b) Avoid sudden movements, rushed movements, laughing out loud, constant eye contact, and other suspicious movements that potentially threaten the child.
- c) Talk through parents when there is no communication relationship with children because children are shy.
- d) Speak using transitional objects, such as; dolls.
- e) In older children, talk one-on-one with the child without being accompanied by parents.
- f) Adjust the position of the eyes parallel to the child’s eyes by bending over or sitting.
- g) Speak in a soft, slow, calm, and confident voice.
- h) Say words clearly, use words that are easy to understand, and detailed
- i) Speak in short sentences
- j) Give simple and positive advice
- k) Offer options only when available.
- l) State honestly
- m) Allow the child to express his fears and discomfort verbally and non-verbally.
- n) Modification of communication using techniques that attract attention and provide comfort to the child

Source: Hockenberry et al., (2017)

Communication-Related to the Development of Thinking Processes

The basis of the formation of children’s ability to communicate is the development of language skills and thinking skills. The development of thinking skills starts from sensory-motor development—the development of perception—concrete thinking—abstract thinking—operational abilities. Nurses need to understand the phases of developing communication skills in children that become the work and rationale of nurses in facilitating social communication with children.

Infancy

Babies at this stage cannot pronounce meaningful words yet, so they use nonverbal communication for everything they want to say. Mothers, caregivers, and people around the child must be able to interpret nonverbal behavior and vocalizations because, through this, the baby expresses desires, feelings, and need. The feeling of happiness and satisfaction babies feel is expressed through vocalizations, smiles, and movements of the limbs. High vocalizations, crying, and tears describe discomfort and a desire to fulfill the need for something from the mother, nurse, or people around. Discomfort can be caused by internal or external stimuli, such as feelings of hunger, pain, restraints that are too tight, babies feeling lonely, babies urinating, the room being too cold or hot, and so on. Adults interpret the cause of the baby's crying and act to address the baby's discomfort by observing and touching the baby directly, assessing the cause of discomfort while whispering with the baby. Neonates will respond with nonverbal behavior and calm down after meeting their needs. Neonates are very fond of direct interaction, for example, when rocking, kissing, hugging, holding, and other physical contact gently. Neonates also feel comfortable when people around them communicate with them using words, even if they do not understand what the words mean. This phase will end when the baby enters the phase of fear of strangers. Loud noises, noisy environments, and sudden movements are frightening for babies.

Early Childhood

In children under five years, the dominant attitude is egocentric, where the child sees everything centered on themselves and their point of view. Explain to the child what they can do, ask them to express their feelings, and the nurse to focus on communication with the child. Children are not interested in what others feel or how others experience things. Nurses give children the freedom to learn directly and get their own experience, for example; The child touches a cold stethoscope, the child checks the notebook, the child palpates his neck and feels tickled, the child flanks the thermometer in his armpit and holds it for a few seconds. Children cannot express their curiosity and feelings after these experiences, but they can actively communicate ideas in their minds using their hands. The child will move away unwanted objects, pull others towards something they want to show, turn a deaf ear When hearing

unpleasant sounds, and cover their mouths to say that they do not want to eat or drink; children act directly and concretely, unable to describe something abstract or interpret words literally. Children cannot analogize because they cannot separate fantasy and reality.

School-Age Years

Experience is the dominant thing that dominates the child's mind in this phase, where children are less confident of what they see directly than what they know when facing new problems. They need reasons and explanations and come to believe without being verified. Children are very interested in knowing the functional aspects of all objects, procedures, and stages of an activity. Children are very interested in observing an object, why it exists, what it is for, why it should be used, how to operate it, and the purpose for which it is used. Therefore, before an action procedure is carried out on a child, the nurse needs to explain in simple terms the procedure to be carried out, how the procedure is carried out, why it needs to be done, and what the impact is if the procedure is not performed. For example, before measuring blood pressure, the nurse must show how to squeeze a bulb filled with air, making the "mercury" move up. Have the child squeeze the bulb and observe the "mercury" movement. Appreciation of the actions taken by children so that children are more enthusiastic about following the following Action procedure. In this phase, children have high anxiety about the integrity of their bodies and are very sensitive to anything that threatens or causes injury. They put their bodies into extraordinary things. Anxiety about the body's integrity develops in their possessions, so it shows an excessive reaction when losing or risking losing their belongings. Nurses encourage them to raise their concerns and provide safety assurances against them to reduce their anxiety. Involve the child in doing things to reduce his anxiety according to his personality to create a sense of comfort.

Adolescence

By the time children enter adolescence, children are in a fluctuating period due to confusing roles. At a specific moment, they are called children; at the next moment, they are called adults. For example, when teenagers play games, it is considered that their behavior is inappropriate because they are adults. When adolescents think far ahead, it is

considered not time because they are still children. They are quickly pushed into the adult world, which may be beyond their expectations and abilities. This creates conflict and tension in adolescents, so adolescents try to find an environment that can accept them to enjoy security and comfort to escape pressure. Help your child cope with conflict, anger, and frustration and anticipate negativity during this period. No method is considered adequate for carrying adolescents through this period until adulthood. Adolescents are searching for self-identity now, so nurses need to anticipate the emergence of confusion in adolescents in finding their identity. Adolescents cannot be fully considered adults with self-control and wisdom like adults, nor do adolescents consider that adolescents are just individuals who are experiencing anxiety when considered like a child.

When nurses conduct interviews with adolescents, it is necessary to consider whether the teenager was accompanied by parents during the interview or interviewed separately with parents. When adolescents and parents are interviewed together, it will be easier to identify family relationships, closeness, and harmony between adolescents and children. In this technique, nurses must be able to give children and parents equal time and opportunity to be involved in interviews so as not to seem to prioritize one party and ignore the other. When teens are interviewed separately, nurses quickly establish interpersonal communication, so teens have the flexibility to explain everything, including things that are kept secret from parents. The nurse stressed the importance of maintaining confidentiality but did not include cases of suspected drug and drug abuse, alcohol consumption, suicide plans or murder plans, contraceptive use, pregnancy, and abortion, sexually transmitted infections, and sexual violence (Osteen et al., 2018). Nurses must be able to demonstrate positive communication skills to help adolescents and parents establish more effective communication.

Principles of communication with children (see boxes 5-4):

- a) Based on the age of growth and development of the child. Nurses must adjust communication techniques in children according to the stages of growth and development because children have different communication abilities at each stage.
- b) Look at children holistically. Nurses view children holistically when communicating, meaning that children also experience psychosocial pain when children suffer from physical illness. The illness causes

children to receive treatment and potentially undergo separation from friends, family, and parents.

- c) Positive and prioritizes strength. Nurses must be able to recognize and prioritize the strengths or strengths of children so that children feel comfortable when undergoing hospitalization.
- d) Able to meet the needs of normal children and children with disabilities. Children are unique individuals who require the fulfillment of specific needs during their growth and development, especially children who have disabilities or communication disorders. Existing obstacles need to be overcome, and build a more effective communication strategy so that there are no problems in disrupting the fulfillment of the needs of children with disabilities.

Box 5-2. Communicating with Adolescents

Build a Foundation

Spend time together.

Encourage the expression of ideas and feelings.

Respect their views.

Tolerate differences.

Give praise to positive things.

Respect their privacy.

Set a good example.

Communicate Effectively

Give undivided attention.

Listen, listen, listen.

Be courteous, calm, honest, and open-minded.

Try not to overreact. If you do, take a break.

Avoid judging or criticizing.

Avoid the “third degree” of continuous questioning.

Choose important issues when taking a stand.

After taking a stand:

a) Think through all options.

b) Make expectations clear.

Source: (Arnold & Boggs, 2020)

Communication techniques in pediatric patients (Arnold & Boggs, 2020)

a) Verbal Techniques

1) "I" message Use the term "I" and avoid using the word "you"/"you."
Using the word "you" gives the impression of judging the client.

Example:

"You" message: "You do not comply with any therapy regimen given by doctors and nurses."

- "I" message: "I want my patient to heal, so I must ensure your treatment works correctly."

2) Third-person technique. Third-person techniques are used when communicating with infants and toddlers. Nurses use the father, mother, or other closest people to communicate with children as facilitators. The child appears more comfortable and friendly when the nurse uses third-person techniques than if the nurse communicates directly with the child. With this technique, children will feel freer to express their feelings openly. The nurse can use her beloved doll or the mother to ask for the child's name. The nurse praises the child through the doll that the child has. After establishing communication with a third person, the child will show willing behavior to establish communication with the nurse. Children are usually embarrassed to meet nurses initially, but at a later stage, nurses can communicate directly with children.

Example:

"Hello, good morning, beautiful doll; what is her name? (the child answers). Then the nurse can continue with other questions."

3) Facilitative response. The facilitative response is the nurse's effort to provide feedback on expressing children's feelings. In facilitating, nurses must be able to respond positively and express their feelings by not dominating the conversation. Use listening techniques with thoughtfulness and empathy, and reflect on the patient's feelings and the content of their statements. The response made by the nurse should not be judgmental. Example: If the child says, "I hate it when nurses come and inject drugs," the facilitative response is: "You feel unhappy with what the nurse did to you." "Are you biased into telling me what makes you unhappy?"

4) Storytelling Children love stories. Using stories, the hope is that children can receive messages more quickly. However, it should be noted that the story conveyed should be in accordance with the message, which can be expressed through writing and images. Using language that is easy for children to understand can get into their thinking area and break through the limits of a child's consciousness or fear. Example: use a picture of a child in a hospital with other people in a room, and ask them to describe the situation; Or" cut the comic story, remove the words, and ask the child to add a statement to the illustration.

5) Storytelling Each other is a more therapeutic approach than storytelling because there is a typical response from the nurse. Start by asking the child about his experience in the hospital, followed by other stories told by the nurse that is almost the same as the child's story but with differences that help the child to identify problem areas. Example: The child's story is about being hospitalized and rarely seeing his/her parents. The nurse's story is also about the child (using a different name, but the situation is similar) in the hospital whose parents visit every day (in the afternoon after work) until the child feels better and eventually goes home with them

6) Bibliotherapy. Nurses can use books/magazines to help children express feelings by telling the contents of books or magazines that match the message to be conveyed to the child. The general guidelines for using bibliotherapy are as follows:

- a) Assess the child's emotional and cognitive development to measure the child's readiness to understand messages from books.
- b) Know the content of the book (the message conveyed and its purpose)
- c) Choose books that are appropriate for the child's age.
- d) Read the book if the child cannot read.
- e) Explore the meaning of books together with children

7) Dreams: Encourage your child to say about dreams or nightmares he experienced during hospitalization. Sometimes a child's feelings of stress can be carried away in dreams. Dig with him about the possible meaning of the dream; this can help the child express his feelings.

8) “What if” questions This technique can help children determine existing problem-solving options. Example: “What if you get sick and have to go to the hospital?” The child’s response shows what they already know and what they want to know; this question also provides an opportunity to help the child learn coping skills, especially in difficult situations.

9) The child’s expectations are encouraged to be expressed; so that the child’s wishes and complaints can be known. These expectations can show the feelings and thoughts of the moment. Involve the question, “If you had three things in this world, what would they be?” Ask the child about those certain expectations.

10) Using a scale This technique is often used to measure pain in children. Use several rating scales (numbers, sad faces, happy) for various events or feelings. Example: pain scale (on a scale of 1 to 10, where 10 is the day that hurts the most).

11) Complete sentences. Involve partial statements and ask the child to complete them. Some examples of such statements are as follows: “What I like most about school is.....”, “The food I like the most is.....”, “The funniest thing I’ve ever done is...”

12) Pros and cons (Pros and cons/good-bad). Using this technique is very important to know the feelings and thoughts of the child by proposing situations that show positive and negative choices according to the child’s opinion. Example: Choose a topic, for example: “Being in the hospital,” ask your child to say “five good things and five bad things about it.

b) Nonverbal Techniques (Arnold & Boggs, 2020)

1) Writing Is an alternative communication approach for older children who can write fluently. Children can be encouraged to express what they feel in a diary/journal.

2) Drawing Is one form of communication that best suits children. Nurses can know the child’s feelings non-verbal (from seeing pictures) or verbally (from children’s stories about pictures). The children drawing represent

their interest since it reflects their personality and projection of themselves from the inside.

3) Use simple magic tricks to assist in fostering a relationship with the child, encouraging compliance with health interventions, and providing effective distractions during painful procedures.

4) Play Children show their identity through play activities. The play referred to here is a therapeutic play that can benefit the nursing regimen (for example: blowing balloons for children with asthma). With more specific directions, such as giving (harmless) medical equipment or dolls to focus/facilitate the child, such as exploring the child's fear of injections or exploring family relationships.

Good communication with children is challenging, even for a registered nurse. A literature study of 19 articles found that patient simulation is a practical simulation method for teaching nurse-patient communication skills in achieving more challenging clinical interactions. This training method provides a robust educational foundation for nurses to develop their communication skills to educate children and families. In addition, this method has improved nurses' ability to engage directly with patients in a broader clinical context with a more critical level of analysis and understanding (MacLean et al., 2017). For this reason, even registered nurses need training in patient simulation communication techniques before communicating with children and families.

Play

Play is one of the most important forms of communication and practical techniques for communicating with each other, also becoming a universal language among children. Play is also a guide for nurses to assess the progress of physical abilities and intellectual and social development of children from the simple form to the complexity of children's behavior while playing. Playing can be done using makeshift tools or without using tools at all. Play activities can be therapeutic to reduce trauma due to disease, therapeutic procedures, and the environment during hospital treatment. An effective technique for initiating communication in older infants is a game of ci...luk...ba.. with a "safe" and non-threatening account. There is occasional eye contact

between nurses and infants, friendships are established, and nurses are no longer considered strangers.

Furthermore, games can be done using touch to establish closer communication, holding the baby's hand and clapping hands together, for example, by mentioning parts of the infant's face while touching the part. Playing by touching or moving the baby's hands and feet can be done when the baby is in the arms of the parents. Touch on the body is an effective tactile stimulus to establish communication with the child. Through play, children express their feelings and closeness to their relationships with each family member, relationships with friends, teachers, nurses, and other health workers. Play becomes a medium for children to express their knowledge from previous experiences or from listening to others around them. For example, the child repeats a traumatizing event using a doll or without the help of any objects. The child described his thoughts and feelings about the procedure Action was very painful because it had to be infused repeatedly, repeating the words that the nurse said that the child should calm down. In contrast, the procedure Action felt very painful. The child will repeat each experience in detail and show anger and hostility with the medical member (Hockenberry et al., 2017).

D. The Concept of Anticipatory Guidance (Safety and Prevention of Accidents in Children)

Literally, anticipatory guidance comes from English. Anticipatory guidance can be interpreted as clues that need to be known in advance so that parents can direct and guide their children wisely so that children can grow and develop normally. *Anticipatory guidance* is also an effort made by nurses to guide parents about the stages of child development so that parents are aware of what is happening and know what must be done to meet the needs according to the child's age stage. Anticipatory action is to carry out prevention strategies before problems arise using anticipatory guidelines. Children's behavior provides opportunities for children to be at high risk of injury in each phase of their growth and development. Parents need to receive special anticipatory guidance on procedures to prevent and minimize the occurrence of injuries and recognize what factors can cause potential injury to children. Anticipatory guidelines should be carried out as long as the child is in adult care. Caregivers must adhere to the important measures in anticipatory

guidelines to prevent the risk of injury to children. Parents need to pay attention to the condition of the house and its surroundings and make changes to certain parts early on to increase safety for the child. (C. Dosman et al., 2022) mentioned that anticipatory guidance techniques given to parents are not only limited to providing general information but are more emphasized to empower families and build competencies owned by families in improving parenting skills for their children. That is, nurses as counselors can conduct exceptional counseling guidance to families to increase knowledge and empower families to be able to take anticipatory actions and improve parenting skills so that children avoid injury (Dosman et al., 2012).

Actions that the nurse must take to achieve an adequate level of anticipatory guidance, namely:

- a) The family identifies what its needs are and the care of the intervention to meet the needs of the family, so the identification of family needs is done by professionals rather than by the family.
- b) Facilitate families and provide opportunities to demonstrate the ability to conduct anticipatory guidance.
- c) Nurses have confidence and provide confidence that families are able to carry out anticipatory guidance during care to prevent the risk of injury to their child.

Anticipatory Guidance—Care of Families

Anticipatory guidance is also an effort made by nurses to guide parents about the stages of child development so that parents know what is happening and know what must be done to meet the needs according to the child's age stage. Anticipatory guidance for parents will differ for each stage of the child's age because it is adjusted to its characteristics.

Childrearing is no easy task; it challenges both new and seasoned parents. With society's changing roles and a highly mobile population, traditional role models and time-honored methods of raising children are declining. As a result, parents look to professionals for guidance. Nurses are in an advantageous position to render assistance and suggestions. Every phase of a child's life has particular traumas—toilet training for toddlers, unexplained fears for preschoolers, and identity crises for adolescents. For parents of infants, some challenges center around dependency, discipline, increased mobility, and safety. Major areas for

parental guidance during the first year are listed in the Family-Centered Care (Boxes 2-13).

Prevention of Accidents in Children

Accidents are often experienced by children that can injure and even cause death. However, parents are the most responsible for the needs and safety of children, so they must understand the characteristics and behavior of children and be aware of potential dangers that can cause accidents. Boys usually have more accidents, especially when playing, than girls because they are more active and use many gross motor skills such as running, jumping, climbing, playing bicycles, etc. In comparison, girls tend to use more fine motor skills, such as playing with dolls, cooking, role-playing, etc. Accidents in children can be prevented and minimized by making various efforts, including modifying the environment to be safe for children. Below are accident prevention efforts that can be done according to the child's age stage (Hockenberry et al., 2017).

Nurse's Role in Injury Prevention

Prevention of Injury in children becomes a priority when the living environment has the potential to cause a jury in children. Nurses should educate parents about preventive procedures for the child's growth and development stages. This is very important because nurses may not be able to protect infants and young children from all potential dangers at all times. Parental involvement in the prevention of jury in children is carried out by increasing parental awareness to recognize everything that has the potential to cause injury. Many childhood deaths continue to occur as a result of preventable injuries. Nurses must know the possible causes of injury in each age group to provide anticipatory, preventive teaching. For example, the nurse should discuss guidelines for injury prevention during infancy (see Box 5-1) before the child reaches the susceptible age group. Preventive teaching ideally begins during pregnancy.

One-third of all injuries to children occur in the home, so the importance of safety cannot be overemphasized. The Family-Centered Care box summarizes a home safety checklist that can be presented to parents to increase their awareness of dangerous areas in the home and assist them in implementing safety devices and practices before their absence can inflict injury on infants. Hands-on displays (such as cabinet

latches or toilet seat locks) can familiarize parents with inexpensive, commercial devices used in the home to prevent injuries.

Box 5-3. Child Safety Home Checklist

Aspiration

Keep away small objects that can cause aspiration, such as buttons, candies, grains, etc. Avoid shaking baby powder over the baby's body; Put the powder on the palm, then wipe it on the surface of the baby's skin.



Figure 5-1 Aspiration when the baby uses a pacifier, especially if the nipple has a large hole. Hold the baby when eating and feeding (Damanik & Sitorus, 2019).

Lack of oxygen:

Keep plastic, pillowcases, and objects that have the potential to close the respiratory tract out of reach of children. Never leave your baby alone in the nursery or bathroom.

Safety: Electrical, Burns

1. Make a safety device on the heater or keep it out of reach of children
2. Make a safety on the power cord or keep it out of reach
3. No overloaded sockets
4. Kitchen matches are stored out of reach of children
5. Keep heating devices and other hot objects (matches, cigarettes, irons, candles, coffee pots, rice cookers) placed in places not reached by children
6. Avoid hot objects or food/drinks from around the child
 - a) Electrical fuse box and gas shutoff are accessible
 - b) Family escape plan in case of a fire practiced periodically; fire escape ladder available on upper-level floors
 - c) Telephone number of the fire or rescue squad and the address of the home with the nearest cross street posted near the phone
 - d) Unused appliances, such as a refrigerator, securely closed with lock or doors removed*
 - e) At least one member of the household trained in basic life support (cardiopulmonary resuscitation [CPR]), including first aid for choking
 - f) Check the temperature of drinking water (milk) in the bottle before the child's consumption,

- g) Keep hot springs out of reach of children, and check bath water before bathing children.
- h) Do not smoke when close to the baby
- i) Avoid prolonged exposure to sunlight when children sunbathe.
- j) Poisoning: Keep toxic materials and harmful chemicals (e.g., detergents, batteries, floor cleaners) out of reach of children

Safety: Poisoning

- a) Toxic substances, including batteries, are placed on high shelves, preferably in locked cabinets.
- b) Poisonous plants are hung or placed out of reach.
- c) Excess amounts of cleaning fluids, paints, pesticides, drugs, and other toxic substances that are not stored at home
- d) Disposed of containers in which the child cannot gain access
- e) Emergency aid phone number and home address with the nearest crossroads installed near the phone
- f) Medicines are clearly labeled in child-resistant containers and stored out of reach
- g) Household cleaners, disinfectants, and insecticides stored in their original containers are separate from food and out of reach
- h) Smoking in areas away from children

Safety: Fall



Figure 5-2. Children using bounding boxes (Damanik & Sitorus, 2019)

- a) Children aged <4 months show involuntary reflexes (for example, the crawling reflex can push the baby forward or backward; the startling reflex can cause body jerks) and roll over more frequently.
- b) Sufficient lighting in the bathroom
- c) The bathroom floor is clean and not slippery
- d) Place the door lock in the bathroom out of reach of children
- e) Give a bed safety when the child is sleeping, do not place the child sitting in a high place.
- f) Avoid pointed-angled objects such as tables or chairs out of reach of children.



Figure 5-3. Kids playing bicycles

- g) To prevent injuries from falling off the bike, getting hit by running after a ball/balloon, or suffocation, place the child on the floor with an idler.
- h) Do not allow children to play unsupervised (kite playing, cycling, climbing, jumping, running, crossing the street).

Safety: Bodily Injury

1. Place dangerous items, sharp or jagged objects, such as knives and broken glass, out of reach of children.
2. Garden tools returned to storage racks after use
3. Pets properly restrained and immunized for rabies
4. Swings, slides, and other outdoor play equipment are kept in a safe condition.
5. Yard free of broken glass, nail-studded boards, and other litter

Safety: Drowning



Figure 5-4. Child swimming under the supervision

- a) Supervise children if playing near water sources
- b) Accompany and supervise children while swimming to avoid drowning hazards

It is not easy to teach safety, supervise closely, and refrain from saying “no” a hundred times daily. Parents become acutely aware of this dilemma when their infants learn to crawl. When children are taught the meaning of “no,” they should also be taught what “yes” means. Children should be praised for playing with suitable toys, their efforts at behaving or listening should be reinforced, and innovative and creative recreational toys should be provided. Infants love to tear paper and avidly pursue books, magazines, or newspapers left on the floor. Instead of always scolding them for destroying a valued book, parents should provide child-safe books (e.g., those constructed of fabric) for them to play with. If they enjoy pots and pans, a cabinet can be arranged with safe utensils for them to explore. One additional factor must be stressed concerning injury prevention and education. Children are imitators; they copy what they see and hear. Further, in boxes 2-15, there is Guidance During Infant’s First Year

Box. 5-4. Guidance During Infant’s First Year

First 6 Months

- Teach parents car safety using federally approved restraint, facing rearward, in the middle of the back seat—not in a seat with an airbag.
- Understand each parent’s adjustment to the newborn, especially the mother’s postpartum emotional needs.
- Teach care of the infant and help parents understand his or her individual needs and temperament and that the infant expresses wants through crying.
- Reassure parents that infants cannot be spoiled by too much attention during the first 4 to 6 months.
- Encourage parents to establish a schedule that meets the child’s needs and themselves.
- Help parents understand the infant’s need for stimulation in the environment.
- Support parents’ pleasure in seeing their child’s growing friendliness and social response, especially smiling.
- Plan anticipatory guidance for safety.
- Stress need for immunizations.
- Prepare for the introduction of solid foods.

Second 6 Months

- Prepare parents for their child’s “stranger anxiety.”
- Encourage parents to allow children to cling to them and avoid long separation from either parent.

- Guide parents concerning discipline because of the infant's increasing mobility.
- Encourage using negative voice and eye contact rather than physical punishment as a means of discipline.
- Encourage showing the most attention when the infant is behaving well rather than when the infant is crying.
- Teach injury prevention because of the child's advancing motor skills and curiosity.
- Encourage parents to leave the child with a suitable caregiver to allow some free time.
- Discuss readiness for weaning.
- Explore parents' feelings regarding the infant's sleep patterns.

E. Immunization

Babies are born with immune systems that can fight off germs, but there are some severe and even deadly diseases they cannot handle independently. That is why newborns will need regular vaccinations to strengthen their immune systems. Many types of vaccines need to be obtained and completed by babies in the age range of 0-12 months. All types of vaccines are certainly not given simultaneously; the administration must follow the immunization schedule for newborns up to 12 months of age based on the latest recommendations from IDAI 2023 here. Immunization becomes especially important early in a child's life because children are exposed to thousands of disease-causing germs daily through food, air, and what they put in their mouths.

Immunization is the process of forming immunity against an infectious disease that occurs after vaccine administration. The vaccine usually contains microorganisms (certain bacteria or viruses) that have been weakened. When introduced into the body by injection or orally, these inactive microorganisms do not cause disease but stimulate the formation of the child's immune system. The child's immune system will recognize bacteria or viruses introduced into the body as foreign. The immune system then responds to the "arrival" of these foreign bodies by creating specific antibody cells that protect the body from potential diseases these live germs can cause. Children who have an excellent body response can quickly fight the virus and reduce the risk of contracting the disease if, in the future, live germs enter the child's body. Immunization is the most appropriate and inexpensive way to prevent maternal and child deaths. "Vaccination is one of the health interventions that are cheaper

and more effective than interventions when someone has been admitted to hospital.”

The implementation of immunization as a primary health service program is currently the focus of the transformation pillar of the Ministry of Health. In 2023, World Immunization Week (PID) has carried the national theme Let’s Protect Yourself, Family, and Society.

In 2022, the Ministry of Health increased the number of mandatory routine immunizations in Indonesia from 11 vaccines to 14 vaccines. Routine immunization is a government program which means people do not need to spend money to get the vaccine, including the Human Papillomavirus (HPV) vaccine.

The 11 types of vaccines previously used include:

1. Complete basic immunization in infants aged 0-11 months
 - a) 1 Month: BCG Polio 1, preventing transmission of tuberculosis and polio
 - b) 2 Months: DPT-HB-Hib 1 Polio 2, prevent polio, diphtheria, whooping cough, tetanus, hepatitis B, meningitis, & pneumonia
 - c) 3 months: DPT-HB-Hib 2 Polio 3
 - d) 4 months: DPT-HB-Hib 3 Polio 4
 - e) 9 Months: Measles, preventing measles
2. Advanced immunization of infants aged 18-24 months
 - a) DPT-HB-Hib immunization 1 dose serves to prevent diphtheria, pertussis, tetanus, hepatitis B, pneumonia, and meningitis
 - b) Measles rubella immunization 1 dose
3. Further immunization of primary school children in the annual program of National Immunization Month
 - a) Measles-Rubella and DT Immunization in grade 1 children
 - b) Tetanus diphtheria td immunization in grade 2 and grade 5 children

The addition of 3 immunizations are: Pneumococcal Conjugate Vaccine (PCV), Rotavirus vaccine, and Human Papilloma Virus (HPV) vaccine. PCV vaccine aims to prevent pneumonia, inflammation of the lining of the brain, and inflammation of the ear caused by Pneumococcal bacteria. Rotavirus vaccine to prevent severe diarrhea and its complications caused by the Rotavirus. While the HPV vaccine prevents cervical cancer (cervical cancer) in women. The PCV vaccine starts in 2022 and will be administered nationwide. All immunization programs that are

part of the mandatory routine immunization program will be exempt from coverage under certain conditions and conditions. For example, the HPV vaccine is required for elementary school girls in grades 5 and 6. This is carried out in the school Child Immunization Month (BIAS) activity program, held in August every year.

**IDAI Immunization Schedule 2023 for Infants 0-12 Months
Immunization Schedule for Children Aged 0-18 Years
Recommendations of the Indonesian Pediatric Association (IDAI) in 2023**

Vaksin	Bulan												Umur															
	Laahir	1	2	3	4	5	6	9	12	15	18	24	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Hepatitis B	0	1	2	3							4																	
Polio	0	1	2	3							4																	
BCG	1																											
DTP		1	2	3							4					5												
Hib		1	2	3							4																	
PCV		1	2				3		4		4																	
Rotavirus		1																										
			RV5 / RV5								RV5																	
Influenza																												
MR / MMR										MR		MR / MMR																
JE										1																		
Varisela																												
Hepatitis A																												
Tifoid																												
HPV																												
Dengue																												

Information:

How to read the age column: for example, means from 2 months (60 days) to 2 months 29 days (89 days).

Primer	Catch-up	Booster	Di daerah endemis	Untuk anak dengan risiko tinggi
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**Figure 5-5 Immunization Schedule for Children Aged 0-18 Years
(Director General of Health Affairs, 2023)**

Immunization Schedule According to IDAI in 2023.

To get the maximum benefit from vaccines, vaccinations or immunizations must be carried out regularly according to the latest infant immunization schedule recommended by IDAI in 2023,

- 1) Hepatitis B: 0 & 18 months, given shortly after birth. The first mandatory infant immunization schedule is hepatitis B. Newborn babies are susceptible to the Hepatitis B virus. In the 2017 Immunization schedule, the first dose is given 12 hours after birth with no further vaccine at the age of 18 months, but in 2023, the first dose of hepatitis B vaccination will be given before the baby is 24 hours old and the second dose is given when the baby has entered the age of 18 months. In infants with a birth weight of less than 2 kilograms, immunization will be postponed until one month. For the

second and third doses of hepatitis B immunization, it will usually be accompanied by other immunizations such as DTP

- 2) Bacillus Calmette Guerin (BCG): 0-1 month. According to IDAI in 2017, BCG vaccination is recommended before the baby is three months old, optimally at the age of 2 months, but according to IDAI in 2023, immunization for the BCG vaccine is given immediately after birth or before the baby is one month old. This immunization protects infants from the attack of the *Mycobacterium tuberculosis* virus that causes tuberculosis or tuberculosis.
- 3) Diphtheria Pertussis Tetanus (DTP): 2, 3, 4 months. DTP is a basic immunization of infants that can prevent several infectious diseases at once, namely: diphtheria, pertussis (whooping cough), and tetanus, Infant immunization was scheduled in 2017. BCG vaccination must be done three times, namely at the age of 2 months, three months, and four months then continued with a DTP booster at the age of 5. According to IDAI, in 2023, there are changes to the schedule for giving DTP boosters, namely for children aged 5-7 years (BIAS/Bulan Imunisasi Anak Sekolah 1 SD) dan 10-18 years (BIAS 5 SD).
- 4) Hemophilus Influenza type B (Hib): 2, 3, 4 months Administration, immunization of Hib infants is combined with DTP and hepatitis B immunization, which is given to infants, two months, three months, and four months of 1 dose each. Immunization is given along with DPT immunization and hepatitis B, also called immunization, DPT-HB-Hib. Immunization, Hemophilus influenza protects infants from pneumonia, meningitis, ear infections (otitis media), and epiglottitis. Hib immunization can prevent meningitis and pneumonia caused by the germ Hib. Meningitis and pneumonia can also be caused by pneumococcal germs that vaccines can prevent. pneumococci (PCV). According to IDAI 2017, Hib booster immunization is given at the age of 15-18 months, while according to IDAI in 2023, Hib booster is given when the baby is exactly 18 months old since it is more optimal.
- 5) Polio: 1, 2, 3, 4 months. Polio is a disease that is susceptible to occur in infants and toddlers caused by viruses that attack the nervous system. The center of the disease causes muscle paralysis, so this polio infection is known as wilting paralytic disease, immunization schedule in 2017, polio vaccine was first given to newborns to aged

- one-month Dose, then given at the age of two months, three months, and four months consecutively, polio immunization will be given again after reaching the age of more than one year.
- 6) Measles 9, 12, 15 months. Children affected by measles will be at risk of lung inflammation, to fungal disorders of the brain. The next dose is given at the age of 12 months. Measles immunization should not be repeated if musty has received MMR immunization.
 - 7) Rotavirus: Start from 6 weeks of age. Rotavirus immunization includes additional immunizations that serve to protect babies from infectious diseases. According to the IDAI immunization schedule in 2023, the administration is carried out on Monovalent twice. The first one starts from 6 weeks of age, four weeks intervals, school-age 24 weeks, and Pentavalent 3 times; the first dose is given 6-12 weeks. The second and third doses are given at intervals of 4-10 weeks and are comfortable at 32 weeks of age.
 - 8) Pneumococcus (PCV): from 7-12 months to protect babies from meningitis, pneumonia, and ear infections. On schedule immunization IDAI in 2023, PCV is given to a) age 7-12 months: 2 times, with a minimum distance of 1 month. Booster is given after the age of 12 months with a minimum distance of 2 months from the previous doses, b) age 1-2 years: 2 times, with a distance of 2 months; and c) age 2-5 years: giving PCV10 2 times with a distance of two months. then plus PCV13 once.
 - 9) Influenza (Flu): from 6 months. This type of vaccine is recommended to be given annually to children aged six months and older, namely: a) Children under nine years old who are getting the flu vaccine for the first time. b) Children older than nine months need only one dose. The vaccine is given by injection with a needle or nasal spray.
 - 10) Meningococcal Vaccine: Starting from 8 weeks.
 - 11) Mumps, Measles, Rubella (MMR) vaccine: Starting at six months. The MMR vaccine can be given to infants aged six months if they travel internationally. The recommended routine dose is at the age of 12-15 months and 4-6 years. The second dose is given when the baby is four weeks old after the first vaccine is taken if they are still traveling and at risk of contracting. According to the latest IDAI infant immunization schedule for 2023, if the baby is 12 months old, they have not received the vaccine. MR immediately give the MMR vaccine. Boosters will be given at 18 months and age 5-7 years.

- 12) Japanese Encephalitis (JE) vaccine: given starting at nine months of age. This vaccine is given to those who will travel to endemic areas. The follow-up infant immunization schedule for long-term protection is 1-2 years later.
- 13) Varicella vaccine: 1-year immunization is given after the baby is 12 months old, best at the age before entering elementary school. If given at the age of more than 13 years, it takes two doses with an interval of at least four weeks.
- 14) Hepatitis A vaccine from the age of 1 year. The immunization schedule is given two doses, the first dose is one year old, and the second dose, the second is given six months to 12 months.
- 15) Typhoid polysaccharide vaccine: from 2 years of age. Polysaccharide Typhoid Vaccine prevents infection with Salmonella Typhi bacteria that cause typhus. The vaccine is made of polysaccharides (complex carbohydrates) from the walls of sole 3. Purified typhi. The typhoid polysaccharide vaccine is recommended for individuals aged two years and older and repeated every three years.
- 16) Human Papilloma Virus (HPV) vaccine: 9-14 years, given to girls aged 9-14 years twice with a gap of 6-15 months or in BIAS program grades 5 and 6 or around 12 years old. Aged 15 years or more, given HPV vaccine three times with a schedule of 0, 1, 6 months (bivalent vaccine) or 0, 2, 6 months (quadrivalent vaccine).
- 17) Dengue vaccine: 6-16 years. If previously the DHF vaccine was given to children aged six years, referring to the recommended IDAI 2023 immunization schedule, now the DHF vaccine can be given to children aged six years.

Child Immunization Schedule that Must be Repeated

Some types of immunizations that must be repeated are:

- a) Polio, the fourth dose should be given when the child is 18 months old
- b) DTP, the fourth dose is given when the child is 18 months old and the fifth dose at 5 years of age.
- c) HiB, the fourth dose given when the child is between 15 to 18 months old.
- d) PCV, the fourth dose given when the child is between 12 to 15 months old.
- e) Measles, the second dose is given at 18 months of age, the third dose at 6 or 7 years of age.

Benefits of Immunization (IDAI, 2023)

The benefits of each vaccine are recommended to be given to the child

- a) Hepatitis D vaccine to prevent infection due to hepatitis B, which can cause mild illness that lasts for several weeks or can also cause severe illness that lasts a lifetime.
- b) Polio vaccine to prevent polio infection in children. Most people infected with polio have mild or no symptoms, but some infections can be severe and cause paralysis or inability to move certain body parts, such as arms, legs, or respiratory muscles. There is no cure for polio infection.
- c) Vaccine BCG to prevent TB or Tuberculosis caused by the infective bacteria *Mycobacterium tuberculosis*.
- d) DPT vaccine is a combination vaccine to prevent three diseases: Diphtheria, pertussis, and tetanus.
- e) PCV vaccine to prevent diseases such as pneumonia, meningitis, and blood infection (bacteremia).
- f) Vaccine rotavirus to protect children from gastroenteritis (stomach inflammations and intestines), which is indicated by symptoms such as acute diarrhea, vomiting, fever, difficulty eating and drinking children.
- g) Influenza vaccine to prevent flu that attacks the respiratory tract.
- h) MR/MMR vaccine to prevent Measles, Rubella, and slings.
- i) Japanese Encephalitis (JE) vaccine to prevent inflammatory disease.
- j) Varicella vaccine to prevent chickenpox or chickenpox.
- k) Hepatitis A vaccine to prevent inflammation of the liver caused by the hepatitis A virus.
- l) Typhoid polysaccharide vaccine to prevent typhoid disease.
- m) HPV vaccine to prevent the Human Papillomavirus virus that causes fungal infections, including genital warts.

Impact If Not Immunized

Children who are not immunized have a higher risk of complications that can cause disability and even death because the body does not have a special defense system that can protect the body from certain dangerous diseases so that germs will more easily develop and infect the child's body.

Immunization Schedule Chase

Types of Immunizations	Total Number of Doses to Be Given	Information
BCG	1 Dose	No later than 11 months (<1 year)
OPV	4 Dose	The minimum interval between doses is 4 weeks
IPV	1 Dose	Administered immediately When a baby/under two years old comes to health care
DPT-HB-Hib	4 Dose (3 doses of basic immunization and 1 dose of follow-up immunization)	Children aged 9-12 months: a) The minimum interval of the first and second doses is 4 weeks (1 month) b) The minimum interval of the second and third doses is 4 weeks (1 month) c) The minimum interval of the third and fourth doses is 12 months
		Children aged >12 months–36 months: a) The minimum interval of the first and second doses is 4 weeks (1 month) b) The minimum interval of the second and third doses is 6 months) c) The minimum interval of the third and fourth doses is 12 months
Measles Rubella	2 Dose (1 dose of basic immunization and 1 dose of advanced immunization).	The minimum interval between the first and second dose is 6 months
PCV	2 dose	The minimum interval between doses is 8 weeks
JE	1 dose	Given to targets living in endemic areas if children aged >10 months have not received one dose, then it is given immediately when the baby/under two years old comes to the health care center

Source: (Dirjen Nakes, 2023) or [click here](#)

In 2022, Indonesia was trying to catch up by closing the immunity gap through BIAN (National Child Immunization Month) activities, increasing advocacy and socialization to LP/LS, monitoring and evaluating immunization achievements regularly, on-the-job training, technical guidance, and mobilizing cadres.

In implementing this effort, Indonesia experienced several challenges, such as:

- 1) Negative perception of routine immunization (many issues related to immunization: unsafe immunization, unqualified vaccines, causing infertility and autism, etc.).
- 2) Lack of public awareness and understanding of the importance of immunization.
- 3) Vaccine cold chain capacity and management that are not optimal.
- 3) Limited budgeting resources and human resources.
- 4) The surveillance ability of Penyakit Dapat Dicegah Dengan Imunisasi (PD3I), such as polio, diphtheria, measles, pertussis, and so on, is not optimal.

The government has taken a strategy to achieve the immunization target for the justice of all Indonesian children. In 2023, the immunization program for children will become global, with the theme “The Big Catch-Up.”

Considering these situations and challenges, implementing Pekan Imunisasi Dunia (PID) 2023 takes the National theme: “Let’s protect ourselves, families, and communities with complete immunization.”

With sub-themes:

- 1) Complete immunization until the age of two
- 2) Immunization by double injection is safe and beneficial
- 3) Ensure complete tetanus immunization status in women of childbearing age (wus)
- 4) Ensure complete routine immunization in school-age children

The immunization campaign in Indonesia begins. Within six months, measles and rubella vaccines were given to 26.5 million children, polio vaccines to 1.3 million children and Penta vaccines to two million children. Despite progress in recent years, Indonesia’s child malnutrition rate is one of the highest in the world—1 in 10 children under five years old is wasting, and 3 in 10 children are stunted. Maternal and child malnutrition, especially stunting prevention, is still a priority in 2022 (Ministry of Health and UNICEF, 2022) or can [click here](#).

SUMMARY

Immunization is the administration of viral or bacterial antigens into the body so that the body can make a substance to prevent certain diseases. Vaccines are materials used to stimulate the formation of anti-substances introduced into the body through injections, such as BCG vaccines, DPT, and Measles, and the mouth, such as Polio vaccines and others. The purpose of immunization is to protect against diseases that can be prevented by immunization. Immunization programs in Indonesia aim to reduce disease incidence and mortality due to Penyakit Dapat Dicegah Dengan Imunisasi (PD3I). The government's strategy for immunization is to increase immunization coverage to reduce infant morbidity and mortality. People can get access to immunization services for free if they do it at government facilities. To maintain the quality of immunization services, the government conducts supervision and guidance with Balai Pengawasan Obat dan Makanan (BPOM) related to the supply and dissemination of vaccines. Regulation of the Minister of Health Number 12 of 2017 concerning the Implementation of Immunization has been established to be a guideline for implementing immunization in the government, private and community environments, seeking equitable distribution of the reach of Immunization services by involving various related sectors, and striving for quality service. The implementation of immunization in children is based on the schedule recommended by IDAI in 2023.

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REVIEW QUESTIONS

Choose the most appropriate answer

1. What is the exact definition of immunization below:
 - A. An attempt to imbue the child with immunity
 - B. Germ toxins introduced into the body
 - C. Immunity made by the body itself after being given a vaccine
 - D. Immunity provided by the mother through the placenta
 - E. Immunity acquired from the outside
2. Below are diseases that do not include diseases that can be prevented by immunization
 - A. Measles
 - B. Tetanus
 - C. Poliomyelitis
 - D. Typhoid
 - E. Tuberculosis

3. A disease characterized by laryngitis, loss of appetite, and low-grade fever. Within 2-3 days, a bluish-white membrane appears on the throat and tonsils.
 - A. Tuberculosis
 - B. Diphtheria
 - C. Pertussis
 - D. Tetanus
 - E. Measles

4. Immunization carried out as a very effective preventive measure to break the chain of transmission through maternal transmission from mother to baby is ...
 - A. Hepatitis B
 - B. Diphtheria
 - C. Pertussis
 - D. Tetanus
 - E. Measles

5. Immunization given 3 times from the age of 2 months with an interval of 4-8 weeks is.
 - A. Tuberculosis
 - B. DPT
 - C. Hepatitis B
 - D. Polio
 - E. Measles

6. Toxin-mediated diseases is..
 - A. Hepatitis B
 - B. Diphtheria
 - C. Pertussis
 - D. Tetanus
 - E. Measles



CHAPTER 6

CHILD GROWTH AND DEVELOPMENT SCREENING PROCEDURE

INTRODUCTION

A child is said to grow when he gains weight and height every day. To determine the extent of the child's growth condition and whether the growth process is running normally, it is necessary to check using certain predetermined parameters. A parameter that is often used to assess children's growth is to take anthropometric measurements. Anthropometric measurements are intended to determine the physical measurements of a child using measuring instruments. This learning activity discusses child growth and development monitoring, including how to monitor growth, anthropometric examinations: measuring weight, height, head circumference, upper arm circumference, and skin fold thickness, and development monitoring using the Denver Development Screening Test (DDST II). This chapter presents the Denver II method and how to apply it. The procedure for monitoring progress with Denver II has been structured to make it easier for readers, especially health practitioners, to understand the initial steps to the interpretation of the results. The next part of the Denver II subject is also equipped with stimulating material that can be used as follow-up according to four developmental parameters in age groups from birth to 6 years.

KEY TERMS

1. Weight
2. Height
3. Upper Arm Circumference
4. Body Mass Index
5. Stimulation of growth and development

6. Growth Status Monitoring
7. Screening for Early Detection and Intervention of Growth and Development
8. Pre-Screening Developmental Questionnaire
9. Denver II

LEARNING OBJECTIVES

A nurse needs to master anthropometric measurement techniques, monitor growth status with DDST, and determine the nutritional status of children. This aims to improve the ability of nurses to carry out nursing care practices in children according to their growth and development stages. After completing this learning activity, it is expected to:

1. Explain how to monitor growth using anthropometric measurements (weight, height, head circumference, upper arm circumference, and skin fold thickness).
2. Practice anthropometric measurements: weight, height, head circumference, upper arm circumference, and skin fold thickness.
3. Explain how to monitor child development using Pre-Screening Developmental Questionnaire and DDST II.
4. Practice progress checks using Pre-Screening Developmental Questionnaire and DDST II.

A. Growth Monitoring

A child is called growth if the child gains weight and height. To measure the extent to which children achieve growth and whether the growth process is running normally, it is necessary to examine using certain predetermined parameters such as anthropometric measurements. Anthropometric measurements to determine the physical measurements of children using certain measuring instruments such as scales and measuring tapes (meters). Anthropometric sizes are divided into 2. Namely, measurements are compared with age. For example, weight against age, height against age, head circumference against age, and upper arm circumference against age. To determine the final result, it is necessary to compare it with the child's age; then, it is necessary to know the child's date of birth. The results of anthropometric measurements above are compared with the child's age. It does not depend on age; the measurement results are compared to other measurements regardless of how old the child is. For example, weight to

height, upper arm circle, and skin fold thickness. The results of anthropometric measurements are compared with standard measures such as NCHS from Harvard or national standards (Indonesia) as recorded on the Kartu Menuju Sehat (KMS).

Growth Measurements

Measuring physical growth in children is a key element in evaluating their health status. Physical growth parameters include weight, height (length), skinfold thickness, arm circumference, and head circumference. Values for these growth parameters are plotted on percentile charts, and the child's measurements in percentiles are compared with those of the general population. Growth Charts use a series of percentile curves to demonstrate the distribution of body measurements in children.

Children whose growth may be questionable include:

- a) Children whose height and weight percentiles are widely disparate (e.g., height in the 10th percentile and weight in the 90th percentile, especially with above-average skinfold thickness)
- b) Children who fail to follow the expected growth velocity in height and weight, especially during the rapid growth periods of infancy and adolescence
- c) Children who show a sudden increase (except during normal puberty) or decrease in a previously steady growth pattern (i.e., crossing two major percentile lines after 3 years old)
- d) Children who are short in the absence of short parents Because growth is a continuous but uneven process, the most reliable evaluation lies in comparing growth measurements over time because they reflect the change. It is important to remember that normal growth patterns vary among children the same age

This anthropometric size is divided into two groups, namely:

- a) Depending on age, that is, the measurement results are compared to age. For example, weight against age, height against age, head circumference against age, and upper arm circumference against age. Thus, it can be known whether the measurement of bacillus is classified as normal for children his age or not. Accurate information is needed about the child's date of birth to determine it. The difficulty is

in certain areas, where parents sometimes do not remember, and there is no record of the child's date of birth.

- b) It does not depend on age; the measurement results are compared to other measurements regardless of how old the child is. For example, weight to height, upper arm circle, and skin fold thickness.

The results of anthropometric measurements are compared with certain standard sizes, such as NCHS from Harvard or national standard standards (Indonesia), as recorded on the Kartu Menuju Sehat (KMS). By looking at the comparison of the assessment results with these standard standards, it can be known the nutritional status of children. This comparative value can be used to assess a child's physical growth because it shows the child's position at the percentile (%) of the anthropometric measure of growth. Thus, whether the child lies in the normal, less or more variation can be concluded. In addition, trends (shifts) in children's growth can also be observed occasionally. The anthropometric examination is most often used to determine the state of growth in toddlers (Nursalam, 2005) (Damanik & Sitorus, 2019).

Weight Measurement

Body weight is the simplest growth parameter, easy to measure and repeat. Body weight is the most important measure used in every examination of the physical growth assessment of children in all age groups because body weight is the right indicator to determine the state of nutrition and growth and development of children during the examination. Body weight is sensitive to the slightest changes, such as pain and diet. In addition, in terms of implementation, body weight measurements are relatively objective, can be repeated with any scale, are cheap and easy, and do not require a long time. Weight Babies will experience a maximum weight loss of 10% within 7 days after birth due to the release of meconium and urine that has not been balanced with adequate breast milk or breast milk intake. The initial weight will again be reached on the tenth day.

Some scales are designed to self-correct, but others need to be recalibrated by the manufacturer. Scales vary in accuracy; infant scales tend to be more accurate than adult platform scales, and newer scales tend to be more accurate than older ones, especially at the upper levels of weight measurement. When precise measurements are necessary, two

nurses should take the weight independently; if there is a discrepancy, take a third reading and use the mean of the measurements in the closest agreement. Take measurements in a comfortably warm room. Children should be weighed nude. When birth-to-2-year or birth-to-36-month growth charts are used. Depending on the setting, older children are usually weighed while wearing underpants, a gown, or light clothing. However, always respect the privacy of all children. If the child must be weighed wearing special devices, such as a prosthesis or an arm board for an intravenous device, note this when recording the weight. Children measured for recumbent length are usually weighed on an infant platform scale and placed in a lying or sitting position. When weighing a child, place your hand slightly above the infant to prevent him or her from accidentally falling off the scale (Figure 6-1A) or stand close to the toddler, ready to prevent a fall (see Figure 6-1B). Cover the scale with a clean sheet of paper between each child's weight measurement for maximum asepsis.



Figure 6-1A, Infant on a scale. B, Toddler on a scale. Note the presence of the nurse to prevent falls. (B, Courtesy of Paul Vincent Kuntz, Texas Children's Hospital, Houston, TX.)

Length or Height

The term length refers to measurements taken when children are supine (also referred to as recumbent length). Until children are 2 years old and able to stand alone (or 36 months old if using a chart for birth to 36 months), measure recumbent length using a length board and two measurers (Figure 6-2A dan B). Because of the normally flexed position during infancy, fully extend the body by (1) holding the head in midline, (2) grasping the knees together gently, and (3) pushing down on the

knees until the legs are fully extended and flat against the table. Place the head touching the headboard and the footboard firmly against the heels of the feet. A tape measure should not be used to measure the length of infants and children due to inaccuracy and unreliability (Foote et al., et al. 2014) (Hockenberry et al., 2017).

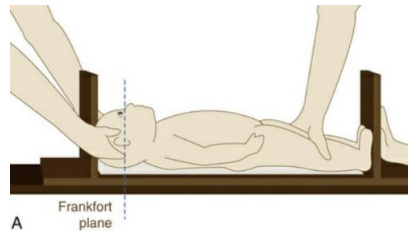


Figure 6-2A. Measurement of linear growth. A, Infant. (Courtesy of Jan M. Foote.)

Figure 6-2B Measurement of infant length (Damanik & Sitorus, 2019)

Source: (Hockenberry et al., 2017)

Height

The term height (or stature) refers to the measurement taken when a child is standing upright. Wall charts and flip-up horizontal bars (floppy-arm devices) mounted to weighing scales should not be used to measure children's height (Foote, Brady, Burke et al., 2014). These devices are not steady and do not maintain a right angle to the vertical ruler, preventing an accurate and reliable height. Measure height by having the child, with the shoes removed, stand as tall and straight as possible with the head in midline and the line of vision parallel to the ceiling and floor. Be certain the child's back is to the wall or other vertical flat surface, with the head, shoulder blades, buttocks, and heels touching the vertical surface (see Figure 6-2). Check for and correct slumping of the shoulders, positional lordosis, bending of the knees, or raising of the heels. In children aged <2 years, height measurement techniques or body length are carried out in a lying position, and ≥ 2 years old are carried out in a standing position. The body length of newborns is, on average, 50 cm. First year height increases ± 1.25 cm/month (1.5 x birth length). The addition of height slowly decreases until the age of 9, which is ± 5 cm/year. The rapid increase in height occurs at puberty, which is about 5-

25 cm/year in women, while men increase about 10-30 cm/year; height increase will stop at the age of 18-20 years.



Figure 6-3. Measurement of linear growth child
(Courtesy of Jan M. Foote.) (Hockenberry et al., 2017)

Note:

To get conclusions from the results of measuring weight with age are on pages 48, 52, 60, and 64 of the books Maternal and Child Health. The results of measuring body length or height with age are on pages 49, 53, 61, and 63 of the books Maternal and Child Health. The results of weight measurement by body length or height are on pages 50, 54, 62, and 66 of the books Maternal and Child Health. The results of measuring Body Mass Index with Age are on pages 51, 55, 63, 67, and 68 of the books Maternal and Child Health. The Maternal and Child Health Book can be viewed at (Kemenkes RI, 2023) or via [click here](#).

Upper Arm Circumference (UAC).

Arm circumference is an indirect measure of muscle mass. Arm circumference measurement follows the same procedure as skinfold thickness, except the midpoint is measured with paper or steel tape. Place the tape vertically along the posterior aspect of the upper arm from the acromial process and to the olecranon process; half of the measured length is the midpoint. World Health Organization growth curves for triceps skinfold and arm circumference measurements are available. UAC

describes the growth and development of fat tissue under the skin and muscles that are not affected more by the state of body fluids than body weight. UAC is used to identify severe malnutrition/physical growth disorders in children at preschool age (1-5 years). UAC measuring instruments use an elastic measuring tape. UAC accretion is relatively slow. In newborns, the size of UAC \pm 11 cm and the first years increases to 16 cm, then does not change much until 3 years (Box 6-1).

Box 6-1. Interpretation of UAC and determination of nutritional status based on UAC

<p>Interpretation of UAC measurement results:</p> <p>UAC (cm):</p> <ul style="list-style-type: none"> • < 12.5 cm = malnutrition (red). • 12.5–13.5 cm = undernourished (yellow). • > 13.5 cm = good nutrition (green). 	<p>Determination of nutritional status based on UAC (if the child's age is unknown)</p> <ul style="list-style-type: none"> • <75% = malnutrition • 75-80% = Undernutrition • 80-85% = borderline • >85% = good nutrition (normal)
--	---

Skin fold thickness.

Skin fold thickness is a reflection of fat tissue under the skin that is more specific. Almost 50% of body fat is in the subcutis tissue, so measuring the fat layer can estimate the amount of total fat in the body (Figure 6-4). The results are compared with the standard to indicate nutritional status, body composition, and energy reserves. In children with malnutrition, Skin fold thickness thins and vice versa thickens in children with excessive nutritional intake (overweight to obesity).

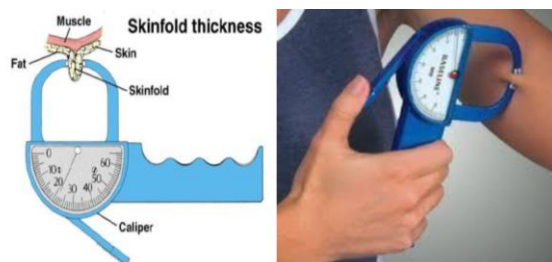


Figure 6-4. Source: (Damanik & Sitorus, 2019)

Head Circumference

Head Circumference describes brain growth from the estimated volume in the head. Head circumference is affected by the nutritional status of children up to 36 months of age. HC measurements must be done periodically to screen for possible brain growth disorders. The results of measuring head circumference in children who experience impaired brain growth then the head circumference will be small or called microcephaly, otherwise in children with a large head circumference or called macrocephaly, it generally occurs due to disturbances in the circulation of brain fluid (liquor cerebrospinal) called hydrocephalus. HC measurement is very necessary for children aged 0-6 months to 2 years, where the period at this age brain growth is very rapid. HC sizes are not solely caused by the above but can be caused by genetic (hereditary) and congenital factors of the baby. Age 0-6 months, HC \pm 34–44 cm Age 1 year \pm 47 cm, Age 2 years \pm 49 cm adult age \pm 54 cm. HC measurements are less common than height and Weight measurements.

Head circumference is a reflection of brain growth. Measure head circumference in children up to 36 months old and any child whose head size is questionable. Measure the head at its greatest frontal occipital circumference, usually slightly above the eyebrows and pinna of the ears and around the occipital prominence at the back of the skull (Figure 6-5). Use paper or non-stretchable tape because cloth tape can stretch and give a falsely small measurement. Because head shape can affect the location of the maximum circumference, more than one measurement is necessary to obtain the most accurate measure. Measure head circumference to the nearest 1 mm or inch. The measurement results are entered into the head circumference measurement chart. This graph can be seen on pages 47 and 59 (Kemenkes RI, 2023) or through [click here](#).



Figure 6-5. Source: (Damanik & Sitorus, 2019)

Plot the head size on the appropriate growth chart under head circumference. Generally, head and chest circumferences are equal at about 1 to 2 years old. During childhood, chest circumference exceeds head size by about 5 to 7 cm (2 to 2.75 inches) (Hockenberry et al., 2017).

Determination of Body Mass Index (BMI)

Children's Anthropometry Standards are used to assess or determine a child's nutritional status. Children's nutritional status is assessed by comparing the results of weight and length/height measurements with Child Anthropometric Standards. The age used in this standard is calculated in full months; for example, if the child's age is 2 months 29 days, it is calculated as 2 months old. The Body Length Index (PB) is used in children aged 0-24 months as measured by the supine position. If children aged 0-24 months are measured by standing position, then the measurement results are corrected by adding 0.7 cm. Meanwhile, the Height Index (TB) is used in children over 24 months old as measured by standing position. If children over 24 months of age are measured in the supine position, then the measurement results are corrected by subtracting 0.7 cm.

Children's Anthropometric Standard Index

Children's Anthropometry Standards are based on weight and length/height parameters consisting of 4 (four) indices, including:

1) Weight Index by Age

The Weight/Age Index describes the relative weight compared to the age of the child to assess children who are underweight or severely underweight, but it cannot be used to classify obese or severely obese children. Children with low weight/age measurement results may have growth problems, so it needs to be confirmed with a weight/length index, weight/height, or body mass/age index before intervention.

2) The Length Index, according to Age or Height according to age, describes the growth of a child's length or height based on his age. This index can identify short (stunted) or very short (severely stunted) children caused by prolonged malnutrition or frequent illness. Children above normal (very tall) usually have endocrine disorders, but this is rare in Indonesia.

3) Weight Index according to Body Length/Height describes whether the child's weight is in accordance with the growth of length/height; it can be used to identify children who are undernourished (wasted), malnourished (severely wasted), and children who have a possible risk of overweight. Poor nutritional conditions are usually caused by diseases and nutritional deficiencies that have recently occurred (acute) and that have long occurred (chronic).

Body Mass Index by Age is used to determine the categories of malnutrition, undernutrition, good nutrition, risk of overnutrition, overnutrition, and obesity. Body Mass/Age Index charts and Weight/Length or Weight/Height charts tend to show similar results (Boxes 6-2). However, the Body Mass Index/Age index is more sensitive for screening children for overnutrition and obesity. Children with a threshold of Body Mass Index/Age $>+1SD$ are at risk of more nutrition, so they need to be treated further to prevent overnutrition and obesity.

Box 6-2. Clinical and Anthropometric Nutritional Status
(Body Weight/Length or Body Weight/Height)

Index	Nutritional Status Categories	Threshold (Z-Score)
Weight according to age, age 0–60 months	Severely underweight	$<-3 SD$
	Underweight	$-3 SD$ to $<-2 SD$
	Normal weight	$-2 SD$ to $+1 SD$
	Risk of More Weight ¹	$> +1 SD$
Body Length or Height according to age, children aged 0–60 months	Severely stunted	$<-3 SD$
	Stunted	$-3 SD$ to $<-2 SD$
	Normal	$-2 SD$ to $+3 SD$
	Hight ²	$> +3 SD$
Body Weight according to Body Length or Height (BB/PB or BB/TB) for children aged 0–60 months	Severely wasted	$<-3 SD$
	Wasted	$-3 SD$ to $<-2 SD$
	Normal	$-2 SD$ to $+1 SD$
	Possible risk of overweight	$> +1 SD$ to $+2 SD$
	Overweight	$> +2 SD$ to $+3 SD$
	Obese	$> +3 SD$
Body Mass Index by Age, children aged 0–60 months	Severely wasted ³	$<-3 SD$
	Wasted ³	$-3 SD$ to $<-2 SD$
	Normal	$-2 SD$ to $+1 SD$
	Possible risk of overweight	$> +1 SD$ to $+2 SD$
	Overweight	$> +2 SD$ to $+3 SD$
	Obese	$> +3 SD$
Body Mass Index by	Severely thinness	$<-3 SD$

Index	Nutritional Status Categories	Threshold (Z-Score)
Age, children aged 5–18 years	Thinness	- 3 SD to <- 2 SD
	Normal	-2 SD to +1 SD
	Overweight	+ 1 SD to +2 SD
	Obese	> + 2 SD

Source (Permenkes RI, 2020). To see the z-score table, Regulation of the Minister of Health of the Republic of Indonesia Number 2 of 2020 concerning Children’s Anthropometry Standards, or [click here](#).

Information:

- ¹ Children who fall into this category may have growth problems, which need to be confirmed with Weight/Height or Body Mass Index/Age
- ² Children in this category are very high and usually not a problem except for the possibility of endocrine disorders such as tumors that produce growth hormone. Refer to a pediatrician if an endocrine disorder is suspected (e.g., a child who is very tall according to his age while the parents’ height is normal).
- ³ Although the Body Mass/Age Index interpretation lists malnutrition and undernutrition, the criteria for diagnosis of malnutrition and undernutrition according to the Malnutrition Child Management guidelines use the Weight Index according to Body Length or Height.

Anthropometric Standard Table and Child Growth Chart

Determination of children’s nutritional status refers to the Standard Table of Child Anthropometry and Child Growth Chart, but the graph better illustrates the child’s growth tendency. Both tables and graphs use the same threshold. To determine the nutritional status of children, both using tables and graphs, it is necessary to pay attention to the four anthropometric standard indices simultaneously so that they can determine growth problems for further preventive and management measures.

Anthropometric Standards and Child Growth Charts consist of Weight Index by Age, Weight by Height, Height by Age, and Body Mass Index by Age.

The Anthropometric Standard Table of Child Nutritional Status Assessment is grouped as follows:

1. Table of Anthropometric Standards for Nutritional Status Assessment of Children Aged 0-60 Months, grouped by the following age groups:

- | |
|--|
| <ol style="list-style-type: none">1) Weight Standards According to the Age of Boys aged 0-60 Months2) Standard Body Length according to the Age of Boys aged 0–24 Months (Measurement of body length is carried out in the state of the child on his back)3) Standard height according to the Age of Boys aged 24-60 Months (Height Measurement is carried out when the child is standing)4) Weight Standards according to Body Length of Boys Age 0-24 Months5) Weight Standards According to Height for Boys Age 24-60 Months6) Standard Body Mass Index according for Boys aged 0-24 Months (height measurement is carried out in the state of supine children)7) Body Mass Index Standard according to the Age of Boys aged 24–60 Months (Height Measurement is carried out while the child is standing)8) Standard weight according to Girls aged 0-60 Months9) Standard Body Length according to Age for Girls Aged 0-24 Months (Height measurement is carried out in the condition of the child on his back)10) Standard height according to Age Girls aged 24-60 Months (Height measurement is carried out when the child is standing)11) Weight Standards according to Body Length of Girls Age 0-24 Months12) Weight Standards according to Height Girls aged 24-60 months13) Body Mass Index Standard according to the Age of Girls aged 0-24 Months (Body length measurement is carried out in the state of the child on his back)14) Body Mass Index Standard according to Age Girls aged 24-60 months |
|--|

To see the anthropometric standard table for nutritional status assessment of children aged 0–60 months, see (Permenkes RI, 2020) on pages 16–44; [click here](#)

- a. Table of Anthropometric Standards for Nutritional Status Assessment of Children Aged 5-18 years. Weight growth at the age of 0-60 months is divided into two age groups, as listed below:

- | |
|--|
| <ol style="list-style-type: none">1) Standard Body Mass Index according to Age for Boys Aged 5-18 years2) Body Mass Index Standard by Age Girls aged 5-18 years |
|--|

To see the standard anthropometric table for nutritional status assessment of children aged 5–18 years, see (Permenkes RI, 2020) on pages 44–55 through [click here](#)

Child Growth Chart

The child growth chart is divided into two major sections: children aged 0–60 months and the age group 15–18 years.

a. Graph of Children Aged 0-60 months. Weight growth at the age of 0-60 months is divided into 16 age groups, as listed below:

- 1) Weight according to Boys' Age 0-24 Months
- 2) Weight according to Boys' Age 24-60 Months
- 3) Body Length According to Boys' Age 0-24 Months
- 4) Height according to Boys' Age 24-60 Months
- 5) Body Weight according to Boys' Body Length 0-24 Months
- 6) Weight according to Height of Boys 24-60 Months
- 7) Body Mass Index by the Age of Boys 0-24 Months
- 8) Body Mass Index by the Age of Boys 24-60 Months
- 9) Weight according to Girls' Age 0-24 Months
- 10) Weight according to Girls' Age 24-60 Months
- 11) Body Length According to Girls' Age 0-24 Months
- 12) Height according to Girls' Age 24-60 Months
- 13) Body Weight according to Girls' Body Length 0-24 Months
- 14) Weight according to Girls' Height 24-60 Months
- 15) Body Mass Index according to Girls' Age 0-24 Months
- 16) Body Mass Index according to Girls' Age 24-60 Months

To see the graph of the age group 0–60 months, see (Permenkes RI, 2020) on pages 55–63 through [click here](#)

b. Chart of Children Aged 5-18 years.

It consists of two graphs, grouped by child gender, namely:

- 1) Body Mass Index according to Age of Boys 5-18 Years
- 2) Body Mass Index according to the Age of Girls 5-18 Years

To see the graph of the age group 5–18 years, see Permenkes RI (2020) on pages 63–64; [click here](#).

Assessment of Child Growth Trends

Normal growth is growth, according to the growth chart, is a picture of nutritional status conditions and optimal health status. If

weight growth can be maintained normally, then length/height and head circumference will also be normal. Growth is simultaneous, but the speed is different. When weight growth experiences weight faltering, at that time, the length/height and head circumference decelerate. Assessment of the growth of the child should be carried out periodically. Many physical and psychosocial problems can affect a child's growth. Impaired growth can be an early sign of nutritional and health problems. The main tools for evaluating growth are the Weight by Age growth chart, weight increment chart, Length/Height by Age chart, length/height increment chart, and Body Mass Index by Age chart by considering age, sex, and accurate weight and length/height measurements.

Assessment of child growth trends is carried out by:

1. Compare Weight Gain with Standard Weight Gain using the Weight Gain by Age chart and weight increment chart, as follows:

a) Weight Gain Assessment Using Weight/Age Chart see, (Permenkes RI, 2020) pages 55–64 or [click here](#)

Child growth trends indicate whether a child is growing normally or has problems, has growth risks that should be reassessed. Children who grow up normally follow trends that align with the median and Z-score lines. Most children will grow up following one of the growth “pathways” at or between the Z score line and parallel to the median; the growth path may be below or above the median number.

b) Weight Gain Assessment Using Weight Gain Table (Weight Increment)

Growth assessment is a dynamic, ongoing process, meaning weight gain should always be assessed over time. Failure to Thrive (FTT) or weight faltering is a term to describe inadequate growth or inability to sustain growth; usually, in early childhood, failure to thrive is an early sign of malnutrition and must be sought for and treated immediately and not a diagnosis. The risk of failure to thrive can be detected by assessing growth trends using growth lines, weight gain over time (weight velocity), and weight increment tables ((Permenkes RI, 2020)

The weight gain table is grouped by the group as follows:

a) Weight Gain Boys and Girls Age 0-24 Months, 3 Months Interval

b) Weight Gain Boys and Girls Age 0-24 Months, 4 Months Interval

c) Weight Gain Boys and Girls Age 0-24 Months, 6 Months Interval

To see the table above can be seen through (Permenkes RI, 2020) on pages 66-69; [click here](#)

Note: For children aged 0-60 months, if there is an increase in body weight above the normal chart, it is necessary to refer to the primary health care to ascertain the possibility of an increase in body fat mass (early adiposity rebound).

2. Comparing Body Length or Height Increase with Height or Length Increase Standards.

a) Assessment of Length/Height Increase Using Length/Age or Height/Age Charts.

Child growth trends indicate whether a child grows normally or has a growing risk that should be reassessed. Children are said to grow normally when the length/height graph is parallel to the median line.

b) Assessment of Body Length or Height Increase Using the Table of Body Length or Height Increase (length/height increment). The increase in body length or height should always be assessed from time to time so that a slowdown in growth can be identified immediately before stunting occurs. Growth slowdown is detected by assessing growth trends using growth lines and length/height increment tables.

The height addition table is grouped as follows:

- 1) Height Increase for Boys and Girls Age 0-24 Months, 2 Months Interval
- 2) Height Increase for Boys and Girls Age 0-24 Months, 3 Months Interval
- 3) Height Increase for Boys and Girls Age 0-24 Months, 4 Months Interval
- 4) Height Increase for Boys and Girls Age 0-24 Months, 6 Months Interval

To see the table can be seen through (Permenkes RI, 2020) on pages 70-73. [Click here](#)

3. Assessing the increase in body mass index according to age

Body Mass Index does not always increase with age as it does with weight and height. The chart shows that the baby's Body Mass Index rises sharply because there is a rapid increase in weight to body length in the first 6 months of life. Body Mass Index decreases at 6 months of age and remains stable at 2 to 5 years of age. Assessment of early body mass index increases between peak adiposity periods and body

fat mass gain (adiposity rebound) using Body Mass Index by Age charts based on screening results using Weight by Age charts. Determination of nutritional risk is more of an early detection effort carried out to identify target groups in order to prevent the incidence of overnutrition and obesity in children and to avoid or reduce the impact of further Non-Communicable Diseases that arise in the future. The difficulty of obesity management makes prevention a top priority.

B. Stimulation of Growth and Development in Children

Stimulation is an activity to stimulate the basic abilities of children aged 0-6 years to achieve optimal growth and development. Every child needs regular stimulation as early as possible and continuously at every turn. Stimulation of child growth and development is carried out by mothers and fathers—who are the closest people to the child, surrogate mothers/caregivers, other family members, and community groups in their respective households and daily life. Stimulation is carried out in four sectors of development, namely gross movement ability, fine motion ability, speech and language skills, as well as socialization and independence skills. Developmental stimulation is part of the Denver II instrument (we will learn in the following subchapter of this chapter). (Kemenkes RI, 2016) Stimulation is an activity to stimulate the basic abilities of children aged 0-6 years so that they can grow and develop optimally. Children who lack stimulation can cause deviations in child growth and development and even persistent disorders. Children need to be given stimulation at all times by involving as many senses as possible through verbal, visual, auditive, tactile, and others. Stimulation is not only done by pediatric nurses but can be done by parents, caregivers, family members, and people around the child. Proper stimulation will stimulate the toddler's brain so that the development of movement, speech and language skills, socialization, and independence in toddlers takes place optimally according to the child's age. Stimulation can be given by hugging, caressing, compliments, kissing, or conversing with children in everyday life. Stimulation will have a maximum influence if given during the sensitive period and adjusted to the child's condition in all aspects of growth and development (Susanto, 2014) The first years of life, especially the period from the fetus in the womb until the child is 2 years old, is a significant period in the growth and development of the child. This period is a golden opportunity as well as a time that is prone to negative

influences. Good and adequate nutrition, good health status, proper upbringing, and proper stimulation in this period will help the child grow healthy and achieve optimal abilities to contribute better to society.

In stimulating children’s growth and development, several basic principles need to be considered:

- 1) Stimulation is done based on love and affection.
- 2) Always show a good attitude and behavior because children will imitate the behavior of those closest to them.
- 3) Provide stimulation according to the age group of the child.
- 4) Do stimulation by inviting children to play biryani, varied, fun, without coercion and no punishment.
- 5) Stimulate gradually and continuously, according to the child’s age, on four aspects of child development.
- 6) Use tools/games that are simple, safe, and available in the environment around the child.
- 7) Give equal opportunities to boys and girls.
- 8) Children are always given praise, if necessary, rewarded for their success.

The ability of child development is correlated with its growth, has a fixed pattern, and lasts sequentially, which is a guideline for the implementation of stimulation in children. Stimulation aims to stimulate the growth and development of children that parents/families can provide according to the division of age groups (Boxes 6-3).

Box 6-3. The Division of Age Groups for Stimulation, namely:

Growth and Development Period	Age Group Stimulation	Growth and Development Period	Age Group Stimulation
1. Prenatal Period, Fetus in the Womb	During Prenatal	1. Toddlerhood (12–60 months)	1. 12–15 months
2. Infancy (0–12 months)	1. 0–month 2. 3–6 months 3. 6–9 months a. 9– 12 months	4. Preschool	2. 15–18 months 3. 18–24 months 4. 24–36 months 5. 36–48 months
			1. 48–60 months 2. 60–72months

C. Growth and Development Screening using Early Growth and Development Detection and Intervention Screening, Pre-Developmental Screening Questionnaire, and Denver II

a) Screening for Early Detection and Intervention of Growth and Development

To understand the material on Early Growth and Development Detection and Intervention Screening can be seen through the book Screening for Early Detection and Intervention of Growth and Development 12 to 20 (Kemenkes RI, 2016) or [click here](#)

b) Child Development Screening using Pre-Screening Developmental Questionnaire.

- 1) It aims to find out the child's normal development or if there are deviations.
- 2) Screening/screening is carried out by health workers, kindergarten teachers, and trained ECCE officers.
- 3) The routine KPSP screening/examination schedule is every 3 months for children < 24 months and every 6 months for children aged 24–72 years (aged 3, 6, 9, 12, 15, 18, 21, 24, 30, 36, 42, 48, 54, 60, 66 and 72 months).
- 4) Suppose parents come with complaints that their children have growth and development problems while the child's age is not the screening age. In that case, the examination uses Pre-Screening Developmental Questionnaire. for a younger screening age and is recommended to return according to the time of the age examination.

The tools/instruments used are:

- 1) Pre-Screening Developmental Questionnaire Form according to age.
This form contains 9–10 questions about the developmental abilities that the child has achieved. KPSP targets children aged 0-72 months.
- 2) Examination aids include pencils, paper, balls as big as tennis balls, rattles, 6 pieces of 2.5 cm side cubes, raisins, peanuts, and small biscuit pieces measuring 0.5–1 cm.

How to use the Pre-Screening Developmental Questionnaire:

- 1) At the time of examination/screening, the child must be brought.
- 2) Determine the child's age by asking the date, month, and year the child was born. If the child's age is over 16 days, it is rounded up to 1

month. Example: baby age 2 months 16 days, rounded to 3 months if baby age 1 month 15 days, rounded to 3 months.

- 3) After determining the child's age, choose the KPSP that suits the child's age.
- 4) Pre-Screening Developmental Questionnaire consists of 2 kinds of questions, namely:
 - a) Questions answered by the mother/babysitter, e.g., "Can the baby eat the cake by himself?"
 - b) Orders to mothers/babysitters or officers to carry out the duties written on the Pre-Screening Developmental Questionnaire. Example: "In the position of your baby on his back, gently pull the baby on his wrist to a sitting position."
- 5) Explain to parents not to hesitate or be afraid to answer, so make sure the mother/caregiver understands what is being asked of her.
- 6) Ask these questions consecutively, one by one. Each question has only 1 answer, Yes or No. Record the answer on the form.
- 7) Ask the next question after the mother/babysitter answers the previous question. Double-check whether all questions have been answered.

Interpretation of Pre-Screening Developmental Questionnaire Results:

- 1) Count how many Yes answers.
 - a) Answer Yes, if the mother/caregiver answers: the child can or does it often or sometimes.
 - b) Answer No, if the mother/caregiver answers: the child has never done or has not done anything, or the mother/caregiver does not know.
- 2) Number of 'Yes' answers = 9 or 10; the child's development corresponds to his stage of development (appropriate = A).
- 3) Number of 'Yes' answers = 7 or 8; child development is doubtful (Confuse = C).
- 4) Number of 'Yes' answers = 6 or less; there may be a deviation (Deviation = D).
- 5) For 'No' answers, it is necessary to break down the number of 'No' answers according to the delay type (gross movements, fine movements, speech and language, socialization, and independence).

Intervention:

- 1) If the child's development is age-appropriate, take the following actions:
 - a) Give praise to the mother for taking good care of her child
 - b) Continue parenting according to the child's stage of development
 - c) Provide stimulation of the child's development at all times, as often as possible, according to the child's age and readiness.
 - d) Carry out children in weighing activities and health services (district health center) regularly 1 time a month and every time there is a Toddler Family Development activity. If the child has entered preschool age (36-72 months), the child can be included in activities at the Early childhood education center, playgroup, and kindergarten.
 - e) Conduct routine examination/screening using Pre-Screening Developmental Questionnaire every 3 months in children aged less than 24 months and every 6 months in children aged 24 to 72 months.

- 2) If the child's development is doubtful (Confuse = C), take the following actions:
 - a) Instruct the mother to do developmental stimulation in children more often, every time, and as often as possible.
 - b) Teach mothers how to intervene to stimulate child development to overcome deviations.
 - c) Perform a medical examination to look for possible diseases that cause deviations in their development and take treatment.
 - d) Reassess the Pre-Screening Developmental Questionnaire 2 weeks later using a list of KPSPs appropriate for the child's age.
 - e) If the results of the Pre-Screening Developmental Questionnaire re-answer 'Yes' remain 7 or 8, there is likely to be a deviation (Deviation = D).

- 3) If the stage of development deviation occurs (Deviation = D, perform the following actions: Refer to the Hospital by writing down the type and number of developmental deviations (gross movements, fine movements, speech & language, socialization, and independence).

Note:

For the implementation of developmental measurement using pre-screening developmental questionnaires in each age group, it can be seen on pages 30 to 56 of the book *Stimulation of Early Detection and Intervention of Growth and Development* (Kemenkes RI, 2016).

Measurement of child development with Denver Development Screening Test (DDST) II or Denver II.

Denver II is a test scale or instrument to monitor child development. This instrument has high validity, so it can be a reference material for monitoring child development from birth to 6 years of age. The Denver II instrument begins with measurements of the developmental abilities of children aged 0-72 months. Denver II is an instrument that can help health workers to detect early (*screening*) any developmental problems or irregularities that occur in children from birth to 6 years old. Denver II is an assessment method used to assess cognitive and behavioral problems in children (from birth to age 6). This instrument was first developed by William K Frankenburg and introduced by William. K. Frankenburg and Josiah. B. Dobbs, 1967. The name Denver is taken from the University of Colorado Medical Center Denver, where this screening method was initially devised (Hockenberry et al., 2017).

Denver II consists of 125 items of developmental task tests arranged according to age stages starting from birth to 6 years, which are divided into 4 sectors, namely:

- a) Personal social is an aspect related to the ability to be independent, socialize and interact with the environment.
- b) Fine motor adaptive is the aspect related to the child's ability to observe things and perform movements that involve certain parts of the body and are performed by small muscles but require careful coordination.
- c) Language is related to the ability to respond to sounds, follow commands and speak spontaneously.
- d) Gross motor movements, which are aspects related to movement and posture.

Each task is depicted in the form of a horizontal rectangular box sequentially according to age in a Denver II sheet. In general, when the

test is done, the tasks examined at each screening only range from 25-30 tasks, so it takes little time.

Tools used:

Spools of red wool yarn, raisins/manic-beads, rattles (*icik-icik*) with small handles, cubes of red, yellow, green, and blue two pieces each with a size of 2.5 cm x 2.5 cm, small bottles, tennis balls, small bells, paper and pencils, Denver II form sheets and instruction manuals for reference.

Benefits of using Denver II Instruments:

- 1) Assess the development of children according to their age.
- 2) Monitor children who appear healthy from 0 years to 6 years old.
- 3) Recruiting asymptomatic children for possible developmental abnormalities.
- 4) Determine whether the child with suspicion has abnormalities or whether there are developmental abnormalities.
- 5) Monitor children at developmental risk, for example, children with perinatal problems.

The Denver II procedure consists of 2 stages:

1. The first stage is carried out periodically in all children aged 3-6 months, 9-12 months, 18-24 months, 3 years, 4 years, and 5 years.
2. Stage two is performed on those suspected of developmental impediment in stage 1, followed by a complete diagnostic evaluation.

Examination technique:

1. Determine the age of the child by using a benchmark of 30 days for 1 month and 12 months for 1 year.
2. If the calculation result is less than 15 days, it is rounded down, if equal to or more than 15 days rounded up.

How is the age of the child determined?

Age calculation benchmark:

- 1) 1 month = 28, 30, or 31 days, according to the month
 1. 1 month = 28 days: February
 2. 1 month = 30 days: April, June, September, November
 3. 1 month = 31 days: January, March, May, July, August, October, December

- 2) 1 year = 12 months
- 3) Age less than 15 days rounded down (ignored)
- 4) Age greater than or equal to 15 days rounded up (to 1 month)
- 5) Benchmark for age correction of children born prematurely: 1 year = 12 months; 1 month = 30 days; 1 week = 7 days

How to calculate age:

- 1) Set the child's chronological age: Ask for the date of birth, month, and year of birth to be examined. If the subtracted number of days is greater, take the corresponding number from the number of months in front of it (e.g., October = 31 days, November = 30 days).
- 2) If, in the calculation, the age is less than 15 days rounded down, if it is equal to or more than 15 days rounded up (to 1 month).
- 3) The age of the child is calculated using the date, month, and year of examination minus the date, month, and year of birth of the child. The result is the child's age in years, months, and days (e.g., 1a and 1b).

Example 1a	Year	Month	Day
	2022	17	45
Test Date	2023	06	15
Date of Birth	-2020	-11	-18
Age of Child	02	06	27

Based on Table 1a above, the chronological age of children is 2 years 6 months 27 days or 2 years 7 months

Example 1b	Year	Month	Day
Test Date	2023	06	22
Date of Birth	-2019	-05	-20
Age of Child	04	01	02

Based on Table 1b, the chronological age of children is 4 years 1 month 2 days or 4 years 1 month

- 4) If the child was born prematurely, adjust the age of prematurity by reducing the child's age by that number of weeks.
- Age must be corrected for children born more than 2 weeks before the estimated date (1 year = 12 months; 1 month = 30 days; 1 week = 7

days). For children younger than 2 years, the age should be corrected in months (1 year = 12 months; 2 years = 24 months). See example 2.

Example 2

Age Calculation of Premature Children

An. Mark was born prematurely at 35 weeks gestation on May 06, 2021. Reviewed progress with Denver II on June 01, 2023. Calculate An's chronological age. Mark!

Known:

Date of birth of Mark's child: 06 May 2021

Test date : June 1, 2023

Premature : 35 weeks

A term = 37 weeks

Then 37-35 = 2 weeks

Asked:

How old is An's chronological? Mark?

Answer:

Test Date 2023-06-01

Date of Birth 2021-05-06
01-10-25

Mark's age if term (not premature) is 01 years, 10 months, 25 days or **1 year, 11 months, or 23 months**. The age is reduced by the age of prematurity, which is 2 weeks X 7 days = 14 days so that the chronological age of An. Mark for the Denver II examination was:

Test Date 2023-06-01
Date of Birth 2021-05-06
01-10-25
14
01-10-11

Mark's age after correction with his premature age was 01 years, 10 months, 11 days, or 1 year, 10 months, or 22 months. The whole is described as follows:

	Year	Month	Day
Test Date	2023	06	01
Date of Birth	-2021	-05	-06
Age of Child	01	10	25
Premature 2 weeks			-14
Age Adjustment of Premature Children (corrected age)	01	10	11

- 1) After knowing the age of the child, then using a ruler, draw a line vertically from top to bottom based on the chronological age listed at the top of the form so as to cut the developmental task box on the Denver II form.
- 2) Assess each sector, whether **Passed = P**, Fail = **F**, Refusal = **R** or **the child does not get a chance** or No Opportunity = **NO**). The results obtained are marked (v)

After that, it is calculated on the raising-each sector, how many items get P and F, then the test results are classified as **Normal, Abnormal, Question-Able, and Untestable**.

Assessment results (interpretation of Denver II results):

Abnormal

- a) If 2 or > delay is obtained on 2 or more sectors.
- b) If in 1 sector or > 2 or > delay + 1 sector *or > with 1 delay and in the same sector no one passes on the box that intersects with the age vertical line.*

Suspect

- a) If in 1 sector there are 2 delays/more.
- b) If in 1 or more sectors there is 1 delay and in the same sector no one passes on the box intersecting the vertical line of age.
- c) If obtained, at least 2 cautions or minimal delay (in one sector).
- d) Retest in one to 2 weeks to eliminate momentary factors (fear, state of pain, fatigue).

Untestable

- a) In the event of refusal, that causes the test result to be abnormal or doubtful.
- b) When there is a score, reject 1 or more items to the left of the age line.
- c) Reject > 1 item area 75%-90% (green color)

Normal

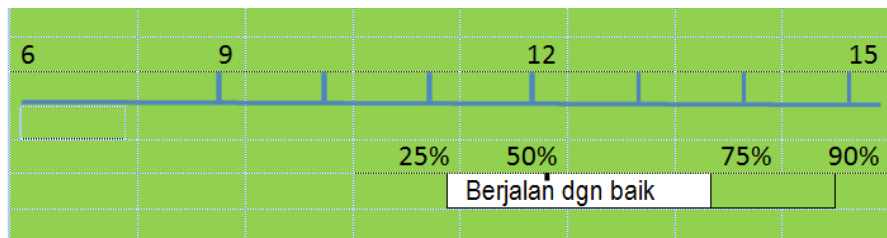
- a) All those not listed in the above criteria
- b) If there is no delay
- b) Maximal 1 caution
- c) Retake the examination on the next health contract. For more details, we can see the DDSTII examination sheet (attached).

Detail Instrument Denver II

It consists of 1 sheet of paper where the front page contains the test, and the back page contains the implementation instructions.

- 1) On the front page, there is an age scale in months and years on the top and bottom horizontal lines
 - a) Age starts from birth to 6 years.
 - b) The age scale is listed at the top and bottom of the form, divided into ages in months and years.
 - c) Any space between age marks in newborns to 24 months, the distance between 2 signs (small erect lines) is 1 month.
 - d) Any space between the age mark is 24 months to 6 years, and the distance between the 2 signs (small vertical line) is 3 months
- 2) On the top left front page, there is an age balance showing 25%, 50%, 75%, and 90%
- 3) At the bottom right is a small box containing behavioral tests. This behavior test can be used to compare the child's behavior during the test with the actual behavior.
- 4) The middle section contains 125 items depicted in the age balance of 25%, 50%, 75%, and 90% of all standard samples of normal children who can perform the task.

Example:



Interpretation:

Goes well (berjalan dengan baik), has the following meanings:

- 1) Twenty-five percent (25%) of the entire child population can walk well by 11 months of age
- 2) Fifty percent of children (50%) of the entire child population can walk well by the age of 12 months.
- 3) Seventy-five percent of children (75%) of the entire population can walk well by 13 months. (At the left end of the green area)
- 4) Ninety-five percent of children (90%) of the pediatric population can walk well by 15 months. (At the far right of the green area)

In some developmental task items, a number at the end of the box on the left (for example, 1, 2, etc.) indicates that the item requires special instructions that can be seen on the back of the test sheet according to the number written.

5) When is the screening done?

Determination of the screening stage through 2 stages, namely:

- a) Stage I is carried out periodically in children aged 3-6 months, 9-12 months, 18-24 months, 3 years, 4 years, 5 years, and 6 years.
- b) Stage II, performed on children suspected of developmental impediment in stage I, is then evaluated diagnostically.

How to Score Test Item Assessment?

P: Passed

The child can do the item well or the mother/caregiver reports (precisely/reliably) that the child can do it

F: Fail

The child cannot do well, or the mother/caregiver reports that the child cannot do well

NO: No Opportunity

The child needs to have the opportunity to do the item because there are obstacles. This score is only used for items with an L code/Parent or caregiver report.

R: Refusal

The child refuses to take the test because of momentary factors, for example, tired, crying, or sleepy.

The interpretation of Denver II test results consists of 2 stages: assessment per item and overall test assessment.

1) Assessment per item

a) Advanced = more child development

- If the child can pass/pass (P=Pass) on the test on the test item to the right of the age line
- A score of “More” is given to the child for being able to perform developmental tasks that should be mastered by children older than his age, passing (being able to perform) all test items that pass the age line completely to the right of the chronological age line (skipped in less than 25% of children older than the child)

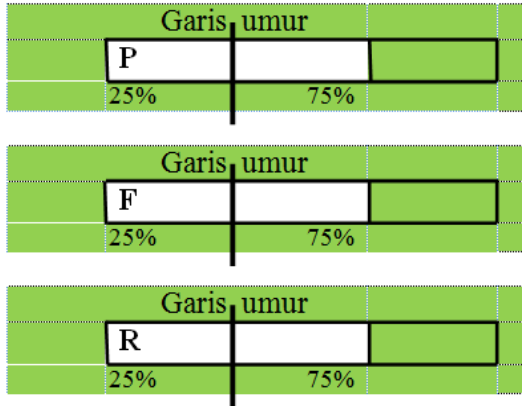


Note: garis umur the same with age line in

b) Normal or OK

- Fail/reject tasks on items to the right of the age line. This condition is reasonable because the item to the right of the age line is basically a task for older children. It does not matter if the child fails or refuses to perform the task because there are still many opportunities for the child to perform the task if he is of sufficient age

- Pass, fail, or reject items with an age line of 25-75%. If the child passes, it is considered normal; if it fails or refuses, it is also considered normal

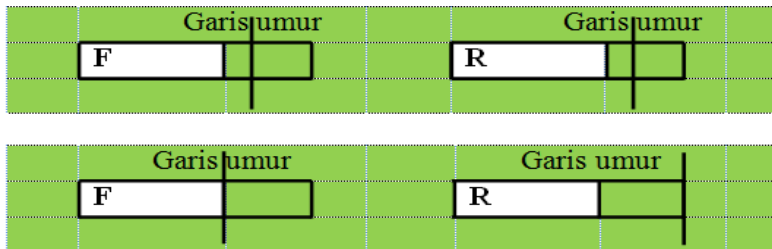


Note: garis umur the same with age line

- White areas indicate that as many as 25-75% of children at that age are able to (graduate) to do the task; in other words, there are still some children at that age who have not succeeded in doing it

c. Caution

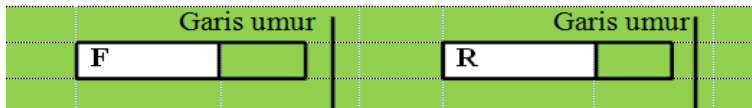
- When a child fails (F) or refuses (R) developmental tasks, where the age line lies at or between the 75th and 90th percentiles.
- Write "C" to the right of the box.
- The results showed that as many as 75-90% of children at that age have succeeded in doing the task; in other words, the majority of children have been able to do the task well.



Note: garis umur the same with age line

d. Delayed = D

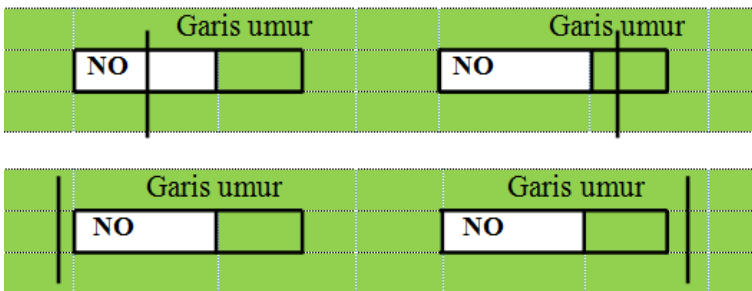
If a child fails (F) or refuses (R), the test is located entirely to the left of the age line. Failing at a point ultimately to the left of the chronological age line; Rejection to the left of the age line is considered slowness since the reason for refusing may be the inability to perform certain tasks.



Note: garis umur the same with age line

e. No Opportunity = No

In the developmental task based on the report, the parent reported that the child had no opportunity to perform the developmental task. These results are not included in concluding and do not need to be interpreted.



Note: garis umur the same with age line

Final Interpretation/Overall Test Assessment

a. Normal

- 1) No Delayed or 0 T score
- 2) At most, one Caution score or 1 P
- 3) If these results are obtained, re-examine at the next visit

b. Suspect

- 1) There are one or more scores of Delayed or ≥ 1 T
- 2) There are two or more Caution scores or ≥ 2 P

- 3) In this case, delay and caution should be caused by Failure = F, not by rejection Refusal = R
- 4) Retest 1-2 weeks later to eliminate momentary factors such as fear, pain or fatigue

c. Untestable/Cannot be Tested

- 1) There are one or more Delayed or ≥ 1 T scores
- 2) There are two or more Caution scores or ≥ 2 P
- 3) Delay (D) and Caution (C) must be caused by Refuse (R), not by Fail (F)
- 4) If these results are obtained, do a repeat test 1-2 weeks later.

Note: If retesting is still found suspect or cannot be tested/untestable, the child needs to be referred to a specialist to determine the child's clinical condition. If the child is at risk of developmental abnormalities, efforts to identify development are carried out.

- 1) In each sector, tests were performed on at least 3 items closest to the left of the age line and on all items that crossed the age line.
- 2) If the child is unable to perform any of the items (Fail, Refuse, No Chance), additional items are inserted to the left of the age line (within the same sector) until the child can Pass/Pass 3 items in a row.

To determine the ability of children with more "Advanced" child development, the following steps are taken:

- 1) In each sector, test at least one of the nearest 3 items to the left of the age line and on all test items that cross the age line.
- 2) Continue by performing tests on each test item to the right of the age line until you get a failed score three times in a row.

SUMMARY

The conclusions that can be drawn based on the description above are:

1. A child's growth can be assessed by conducting a series of growth checks called anthropometric examinations consisting of weight, height, head circumference, upper arm circumference, and skin fold thickness. Based on the examination results, the nutritional status of the child, his growth rate, and the detection of possible congenital diseases such as hydrocephalus or mental retardation can be known.

2. Monitoring child development can be done in several ways, one of which is by using the DDST II test. DDST II is one method that can be done to assess children's ability to perform developmental tasks. DDST II is neither a diagnostic test nor an IQ test. However, the results of DDST II can be an indicator of child development, so if the results of the examination of many items the child fails to do, parents must be vigilant and further examination should be carried out.
3. The developmental indicators examined in DDST II consist of 4 sectors: personal, social, fine motor, language and gross motor. All of them are broken down into 125 items of developmental tasks that children must pass according to age.

Early detection of growth and development deviations needs to be done to be able to detect early deviations in toddler growth and development, including following up on every parent's complaint about their child's growth and development problems. If deviations are found, early intervention of toddler growth and development deviations is carried out as a corrective action by utilizing the plasticity of the child's brain so that growth and development return to normal or the deviation is not worsening. If toddlers need to be referred, then referrals should also be made as early as possible, according to indications. Predictors of the success of child growth and development are determined by improving the child's health and nutritional status and the mental, emotional, social, and independence of children who develop optimally. The development of children's basic abilities has a fixed pattern and takes place sequentially.

EVALUATION

1. The parameters that are often used to assess a child's growth are.....
 - A. Anthropometry
 - B. Weight loss
 - C. Upper arm circumference
 - D. Head circumference
 - E. Chest circumference
2. A mother brings her 5-month-old child to the growth and development polyclinic. The nurse weighs the child to determine the child's growth. What is a normal weight for the child

A. 6 kg B. 7 kg C. 8 kg D. 9 kg E. 10 kg

3. A mother brings her 3-year-old child to the growth and development polyclinic. The nurse takes measurements of body length. What is the normal body length in the child
A. 93 cm B. 94 cm C. 95 cm D. 96 cm E. 97 cm
4. Upper arm circumference measurement is more suitable for assessing nutritional condition/development in children age group....
A. Infant B. Toddler C. Preschool D. School E. Youth
5. A 4-year-old boy was measured in the circumference of his upper arm at the growth and development polyclinic. The result of measuring the circumference of the upper arm is < 12.5 cm. It shows the state of nutrition...
A. Bad B. Normal C. Less D. Excess E. Obesity
6. If the child's age growth measurement is unknown, nutritional status can be assessed by the upper arm circumference index/height. Upper arm circumference/height index = 80-85% state that the child
A. malnutrition B. undernourished C. Borderline
D. Good nutrition (normal) E. overnutrition.
7. After the measurement is calculated, how many items get P and F, then the test results are classified. What is not a DDSTII classification is...
A. Delay B. Normal C. Abnormal D. Confuse E. Unstable
8. If 2 or $>$ *delays* are obtained in 2 or more sectors, then the results of the assessment are
A. Delay B. Normal C. Abnormal D. Confuse E. Unstable
9. If obtained, at least 2 *cautions* or at least 1 *delay* (in one sector). Then the results of the assessment include classification.....
A. Delay B. Normal C. Abnormal D. Confuse E. Unstable
10. The assessment result is normal if it meets the following criteria.....
A. Maximal 1 caution
B. Refuse $>$ 1 area item 75%-90%

- C. If in 1 sector there are 2 delays/more.
- D. If 2 or > *delay* is obtained in 2 or more sectors
- E. When there is a score, reject 1 or more items to the left of the age line

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CHAPTER 7

THE CONCEPT OF ESSENTIAL NEONATES

INTRODUCTION

Soon after birth, babies adapt physically and psychologically very quickly. Babies need close monitoring as long as the baby makes a flawless transition to life outside the uterus. Babies need comprehensive care support to improve their abilities during the transition to optimal success. Nurses are responsible for improving parents' ability to care for their babies. Support from nurses is one of the support systems that can increase parents' confidence, especially for new couples. This chapter will study what a professional should know and understand in performing essential neonates nursing care.

KEY TERMS

1. Essential Neonates
2. Respiratory
3. Thermoregulation
4. Infection
5. Nutrition

LEARNING OBJECTIVES

After studying this chapter, you are expected to have good knowledge and understanding to perform quality nursing care in various situations based on the concept of essential neonates, namely:

1. Explain general precaution (Universal Precaution)
2. Describe the initial assessment
3. Explaining heat loss prevention
4. Explain the cutting and care of the umbilical cord
5. Explaining early initiation of breastfeeding)

6. Explains the prevention of bleeding
7. Explains the prevention of eye infections
8. Applying the maintaining respiratory status in newborns
9. Applying the maintaining thermoregulation in infants
10. Applying the prevention of infection in new babies born
11. Applying the maintaining adequacy of nutrients in the baby

A. The Concept of Neonate Essentials

Newborns undergo transitional periods, namely the first period of reactivity, the period of sleep, and the second period of reactivity. Immediately after birth, the baby is not physiologically dependent at all, whereas, before birth, the baby is entirely dependent physiologically on the mother; this period is better known as the transition period. Neonates are newborns up to 1 month of age. Early neonates are babies aged 0-7 days. Advanced neonates are infants aged 7-28 days (Armini et al., 2017). The adaptation process of newborns first occurs in respiratory activity, heart rate adjustment, baby movement, meconium discharge, and defecation, followed by changes in the function of the kidneys, liver, and immune system. The main factors affecting newborns' ability are maturation, adaptation, and tolerance. Maturation prepares the fetus for the transition from intrauterine to extrauterine life and is more closely related to gestational age than birth weight. Newborns need adjustments to survive in a new environment that is less comfortable than in the prenatal period. Tolerance is the body's ability to resist abnormal conditions such as hypoxia, hypoglycemia, and drastic pH changes that are fatal in adults but not infants. Tolerance and adaptation are inversely proportional to maturity; the more mature the newborn, the better the adaptation, but the less tolerance (Lailaturohmah et al., 2023).

The concept that describes the service actions provided to infants at birth to support the health of newborns consists of universal precaution, initial assessment, prevention of heat loss, cutting and care of the umbilical cord, Early Breastfeeding Initiation, prevention of bleeding, prevention of infection, immunization, provision of identity and history and Physical examination. Newborns are very susceptible to infections caused by exposure or contamination of microorganisms during labor and shortly after birth. Things to look out for in essential neonatal care at birth include:

1. General Precaution (Universal Precaution)

Newborns are susceptible to infections caused by exposure or contamination of microorganisms during labor and shortly after birth. Newborns also do not have a good immune system. During and after labor, nurses and other medical personnel must take hygienic measures to prevent infection. Some microorganisms must be watched out for because they can be transmitted through blood splashes and body fluids are HIV, Hepatitis B, and Hepatitis C. Before handling a newborn, make sure the birth attendant has taken the following infection prevention efforts:

Before handling newborns, make sure the birth attendant has made efforts to prevent infection as follows:

a. Self-Preparation

Wash hands before coming into contact with the baby and then dry them and wear clean gloves when handling babies who have not been bathed (Hockenberry et al., 2017).

b. Tool Preparation

Ensure all equipment and materials, especially clamps, scissors, resuscitation tools, and umbilical cord threads, have been in High-Level Disinfection or sterilization. Use a new, clean suction rubber ball if you will suction mucus with the tool. Do not use the same suction rubber ball for more than one baby. When using a reusable suction rubber ball, ensure the device is clean and sterile, and make sure all clothes, towels, blankets, and fabrics used for babies are clean and warm. Similarly, scales, tape measures, thermometers, stethoscopes, and other objects that will come into contact with the baby are also clean and warm (Kusuma et al., 2022).

2. Initial Assessment

For all newborns, conduct an initial assessment by answering four questions:

Before the baby is born:

- a. Is pregnancy full-term?
- b. Is amniotic fluid clear, not mixed with meconium?

As soon as the baby is born, while placing the baby on a clean, dry cloth that has been prepared on the mother's lower abdomen, immediately perform the following assessment:

- a. Does the baby cry or breathe/not gasp?
- b. Is the baby's muscle tone good/the baby moves actively?

Newborns are handled based on the results of assessments carried out before the baby is born. Use of the flow of newborn management starting from preparation, assessment, and decisions as well as alternative actions in accordance with the results of the newborn state assessment (Kemenkes RI, 2018). Normal newborn management is enough for full-term BBL with clear amniotic fluid that immediately cries or breathes spontaneously and moves actively. If the baby is fewer months (< 37 weeks/259 days) or the baby is more months (\geq 42 weeks/283 days) and/or amniotic fluid mixed with meconium and/or does not breathe or gasp and/or muscle tone is not good, newborn management with Asphyxia (Kusuma et al., 2022).

Some things to note in newborns (Jamil et al., 2017)

- a) The intrauterine state is dim, and minimal stimulation and warmth put the baby in a reactive period immediately after birth. To create a calm physiological body, nurses need to be limited to stimuli, such as pain stimulation, sound stimulation, too frequent and sudden touches, and too bright light stimulation.
- b) Normal babies actively perform symmetrical movements when awake, such as touching the lips, feet, and hands when crying. If the baby shows this behavior during sleep, the baby likely has abnormalities that need further examination.
- c) The overall symmetrical body position. If there is succedaneum caput, the head circumference measurement is done after the head condition returns to normal, and if a mouse occurs, wait until the baby's head returns to its original shape.
- d) The baby's face showed an expression.
- e) The mouth is symmetrical and does not poke like a fish's; there are no bluish marks on the baby's mouth, and saliva production is normal. If saliva is excessive, it may be caused by congenital abnormalities in the digestive tract.
- f) Neck, chest, abdomen: Newborns still use abdominal breathing.
- g) Back: The torso of the baby moves actively.

- h) Skin and nails: skin of reddish color, sometimes appears with slight exfoliation of the skin of the epidermal layer. Be vigilant if there is heavy peeling, uneven skin tone, or Cutis Marmorata” due to cold temperatures, palms, soles of feet, or nails that turn blue, and skin becomes pale and yellow. Large blue spots, often around the buttocks or Mongolian spots, will disappear after the baby is 1 to 5 years old.
- i) Sucking ability and digestive function: feces and urine will come out in the first 24 hours. Be vigilant if the stomach suddenly enlarges, without a stool, accompanied by vomiting, and possibly with bluish skin; please consult immediately for further examination for the possibility of Hirschsprung/Congenital Megacolon.
- j) Reflex: appears primitive reflex such as tonic neck reflex, which is a spontaneous movement of the muscles in normal babies, if prone will spontaneously tilt his head, Rooting reflex is when the finger touches the area around the mouth then the baby will open his mouth and tilt his head in the direction of the finger, Grasping reflex is when our finger touches the baby’s palm then the baby’s fingers immediately grasp very firmly, Moro reflex is a reflex that arises outside the baby’s consciousness, for example, if the baby is lifted violently snatched from the sling then as if the baby makes movements that lift his body to the person holding him, stepping reflex is a spontaneous foot reflex if the baby is lifted upright and his feet are touched one by one on one base then the baby seems to walk, Suckling reflex (sucking) which is the areola putting milk depressed baby’s gums, tongue, and palate so that the active sinuses are compressed and emit breast milk, swallowing reflex (swallowing) where breast milk in the baby’s mouth urges the muscles in the mouth and pharynx area so as to activate the swallowing reflex and push breast milk into the stomach.
- k) Weight loss: Monitor weight loss if more than 5% of body weight at birth indicates a lack of fluids.

Two Periods of Newborns (Heryani, 2019)

- a) The fortunate period in infants lasts between the first 15–20 minutes from when the baby is born until the umbilical cord is cut.
- b) The neonatal period occurs when cutting the umbilical cord; the child becomes a separate and independent individual, characterized by adjustment to the new environment.

Physiological adaptation of newborns is a process of functional adjustment of neonates from life inside the uterus called homeostasis. The inability to adapt causes health problems in newborns. Babies must be able to meet their oxygen independently needs through their own new respiratory and circulatory systems, obtain oral nutrients to maintain adequate sugar levels, regulate body temperature, and fight any diseases. The period of adaptation to life outside the womb is called the transitional period. The most obvious and rapid transitions are in the respiratory and circulatory systems, the thermoregulatory system, and the ability to take in and use glucose (Kusuma et al., 2022).

B. Maintain a Patent Airway

To maintain respiratory status, newborns change in order to adapt to various systems (Kusuma et al., 2022), namely:

a. Changes in the respiratory system

The baby's respiratory function begins with two stages of breathing stimulation, namely:

- 1) Hypoxia at the end of labor and physical stimulation of the uterus's external environment stimulates the brain's respiratory center.
- 2) Pressure on the chest cavity due to compression of the lungs during labor stimulates air entry into the lungs mechanically. A baby's first breathing attempt expels fluid in the lungs to develop the lung alveolus for the first time.

b. Changes in the Circulatory System.

The baby's blood circulation must pass through the lungs to take in oxygen and deliver it to the tissues. Two events that alter pressure in the vascular system.

- 1) When the umbilical cord is cut, the pressure of the right atrium decreases due to reduced blood flow to the right atrium, causing a decrease in volume and pressure of the right atrium. Both help blood with little oxygen content flow to the lungs for reoxygenation.
- 2) First, breathing decreases pulmonary vascular resistance and increases correct atrial resistance. Oxygen in the first breathing causes relaxation and opening of the vascular system in the lungs. Increased circulation to the lungs results in increased blood volume and pressure in the right atrium. Increased blood

volume and pressure in the right atrium and decreased left atrium, causing the foramen ovale to close functionally. The proper functioning of the respiratory system causes an increase in oxygen levels in the blood, resulting in the artery ducts contracting and closing. The umbilicus vein, ductus venosus, and hypogastric artery of the umbilical cord close within minutes after the umbilical cord is in the clamps. Anatomical closure of fibrous tissue lasts 2-3 months.

c. Body Temperature Regulation System

Cold temperatures in the extrauterine environment cause amniotic fluid to evaporate through the skin and cause body heat to evaporate. The formation of temperature without wheezing is the main attempt of a cold baby to regain body heat by using brown fat for heat production. Babies do not reproduce brown fat and will be depleted quickly with cold stress.

d. Glucose Metabolism

To function, the brain requires a certain amount of glucose. In newborns, blood glucose will drop quickly so that sufficient amounts of glucose are needed. Glucose is formed from glycogen; this can occur if the supply of glycogen in the liver is sufficient. Correction of decreased blood sugar levels can be done through breastfeeding, using glycogen reserves, and manufacturing glucose from other sources, especially fat.

e. Changes in the Gastrointestinal System

- 1) The stomach capacity of neonates varies greatly; depending on the baby's size, it is about 30-90 ml. Gastric emptying begins within a few minutes of feeding and is completed 2-4 hours after feeding. The process of gastric emptying is influenced by the time and volume of food, the type and temperature of food, and physical factors. The digestive tract of newborns is relatively heavier and longer than that of the adult tract digestives.
- 2) In neonates, the digestive tract contains a greenish-black substance composed of a mucopolysaccharide called meconium. Meconium forms in the fetal colon as early as 16 weeks of pregnancy and is usually excreted within the first 10 hours of life and thoroughly

disposed of within 48-72 hours. Within 4 days, the stool is usually formed and of regular color. The first stool is blackish-green, complex, and contains bile. Enzymes in the digestive tract are usually present in neonates, except pancreatic amylase.

- f. The mature spit-up reflex and cough reflex are well formed at birth.
- g. Hepatic system changes
Soon after birth, the liver shows biochemical and morphological changes in increased protein levels and decreased fat and glycogen levels.
- h. Changes in the Immune System
The immune system of newborns is immature, so newborns are susceptible to infections and allergies. The natural immunity that the baby has includes protection by the skin mucous membranes, the function of airway tissue, the formation of microbial colonies by the skin and intestines, chemical protection of stomach acid, natural immunity at the cellular level by cells, namely blood cells that help kill foreign organisms and breast milk, especially colostrum, providing passive immunity to the baby.
- i. Changes in the Skeletal System
The neonate's body is slightly disproportionate; the hands are slightly longer than the legs, the back looks straight, can lift and turn the head when facing down.
- j. Changes in Water Balance and Kidney Function.
A newborn's body contains much water, and sodium levels are greater than potassium due to the large extracellular space. Kidney function is not perfect, and the number of nephrons is still not as much as in adults. The imbalance of glomerular surface area, proximal tubule volume, and renal blood flow is relatively less when compared to adults.
- k. Changes in Immunoglobulin.
In neonates, there are no plasma cells in the bone marrow, lamina propria ilium, and appendix. The placenta is a barrier, so the fetus is

free of antigens and immunological stress. In newborns, there is only gammaglobulin G so that immunology from the mother can pass through the placenta because the weight of the curve is small. When infection occurs through the placenta (toxoplasma, herpes simplex, etc.), immunological reactions can occur by forming plasma cells and gamma A, G, and M antibodies.

l. Changes in Acid-base Balance.

The blood's acidity (Ph) at birth is low due to anaerobic glycolysis. Within 24 hours, the neonate has compensated for this acidosis.

m. Changes in the Neurological System.

Compared to other body systems, the nervous system of newborns is very young, anatomically and physiologically. This causes spinal and cerebral reflexes with minimal control by the outer layers of the celebrity in the first few months of life, although social interaction occurs earlier. After the baby is born, brain growth requires a fixed and adequate joint, oxygen, and glucose. The brain is still easily susceptible to hypoxia, biochemical imbalances, infections, and bleeding. Temperature instability and uncoordinated muscle movement describe an incomplete brain development and neural myelination state. Newborns exhibit a number of reflex activities at different ages, indicating normality and guidance between the neurological and musculoskeletal systems.

Establishing a patent airway in newborns is done by adjusting the supine body position, and the neck position is not flexed or hyperextended (neutral position). Setting the newborn in a neutral position is essential to achieve and maintain airway patentability. Moon et al. (2022) recommend adjusting the position of newborns in the supine position during sleep related to an increase in sudden death syndrome in the prone position during sleep. However, (Moon et al., 2022) state that the supine position is proven to increase the number of cranial asymmetry flattening events, especially in unilateral occiput newborns. To prevent this cranial asymmetry, healthcare professionals should educate and encourage parents to change alternative positions in a balanced manner to prevent positional plagiocephaly (Laughlin et al., 2011). The bulb syringe is kept near the baby and used if suction is required.

Mechanical mucus removal can be done if mucus production is excessive and stronger secretions are needed. An appropriately sized catheter and correct suction technique must be used to prevent mucosal damage and respiratory edema during mucus suction. Strong secret sucking can cause vagal reflexes, namely, bradycardia, laryngospasm, and cardiac arrhythmias. To avoid reflex bradycardia, laryngospasm, and cardiac arrhythmias, mucus suction is done slowly. Oropharyngeal suction is performed for 5 seconds, with a sufficient interval between suction measures to allow the baby to reoxygenate. The patentability of an effective airway in newborns is the main purpose of service in the delivery room.

Nursing Alert	
<p>To avoid aspiration of amniotic fluid or mucus, clear the pharynx first and then the nasal passages using a bulb syringe: remember, mouth before nose. Vital signs are closely monitored, and any indication of respiratory distress is immediately reported.</p>	<p>A newborn's major respiratory distress syndrome includes tachypnea, nasal flaring, grunting, intercostal retractions, and cyanosis.</p>

C. Maintain Thermoregulation in Infants

Conserving the newborn's body heat is an essential nursing goal. Provision of nutritional intake in infants aimed at maintaining body temperature stability and conserving infant temperature. Breast milk intake for babies is important to maintain the baby's body temperature. The mechanism of regulating newborn body temperature has yet to function perfectly. Therefore, it is necessary to prevent body heat loss to prevent hypothermia immediately. Newborns with hypothermia are at high risk of severe illness and even death.

How to prevent hypothermia in newborns

- 1) Hypothermia easily occurs in babies whose bodies are wet or not immediately dried and covered with a dry and warm cloth, even in a relatively warm room. When drying vernix from the baby's body, dry it from the face, head, and other body parts except the hands. Verniks on the hands help warm the baby's body (Damanik & Sitorus, 2020), or [click here](#). Premature babies or low birth weight babies are more

susceptible to hypothermia; therefore, the baby's body temperature must be maintained to remain normal and not become hyperthermia (temperature more than 37,5°C) (Hockenberry et al., 2017). See the heat loss mechanism in boxes 7-1.

- 2) Place the baby on the mother's chest or stomach so that there is skin contact of the mother to the baby's skin. After the umbilical cord is cut, place the baby on his stomach or the mother's stomach, with both of the baby's shoulders pressed against the mother's chest or abdomen and the baby's head between the mother's breasts (a slightly lower position than the mother's nipples). Early initiation of breastfeeding without assistance, that is, newborns placed on the mother's chest or abdomen, can naturally find their own source of breast milk and breastfeed.
- 3) Use a wide, warm cloth to cover the mother and baby's bodies with the same warm cloth, and put a hat on the baby's head. The baby's head has a relatively wide surface, and the baby will quickly lose heat if the part is not covered.
- 4) Do not immediately weigh or bathe the newborn. Weigh after one hour of skin-to-skin contact with the baby, and the baby finishes feeding. Because newborns quickly and easily lose body heat, especially if not dressed, cover the baby's body first and then do the weighing. The baby's weight is assessed from the difference in the baby's weight when weighing minus the weight of the blanket used when weighing the baby. The baby should be bathed in stable condition after 6 hours of birth. Bathing the baby in the first few hours after birth and when the body condition is unstable can cause hypothermia which is very dangerous to the newborn's health.
- 5) Mother and baby should sleep in one room for 24 hours and be placed in the same bed as the mother.
- 6) If the baby needs to be referred or needs to be resuscitated, the baby's body temperature must be maintained under normal conditions.

Box 7-1. The Process of Losing Body Heat of the Newborn

1) Evaporation

Heat loss occurs in babies at birth through evaporation due to the moist surface of the body by amniotic fluid. The cold atmosphere of the delivery room and the amniotic fluid that wets the entire surface of the baby's body is the main factor in the evaporation of body heat. To reduce heat dissipation through evaporation, the entire surface of the baby's skin and hair should be dried immediately using a dry towel. In addition to drying the body, it is necessary to immediately establish skin-to-skin contact between mother and baby by putting the baby on the mother's belly and covering it with a blanket (Hockenberry et al., 2017).

Heat loss also occurs if the baby is bathed too quickly and his body is not immediately drained (Damanik & Sitorus, 2020)

2) Radiation

Radiation is heat loss that occurs because the baby is placed near objects that have a temperature lower than the baby's body temperature. Babies can lose heat this way because these objects absorb the baby's body heat radiation (even if they do not come into direct contact). The closer the baby's position is to these solid objects, the more heat loss through radiation will increase. In the radiation process, the environment or ambient air temperature does not affect the process of heat loss from the baby's body. Keep in mind that there is no relationship between the process of heat loss and radiation. Understand that if we want to maintain a normal temperature in a baby, we cannot rely on a warm ambient temperature because even though the air temperature is warm, the baby can experience hypothermia due to radiation. An example of heat loss due to radiation is placing a crib near an open window or an air conditioning unit. Cold air from windows and air conditioning units will cool the walls of the cradle and further cool the neonate's body. To prevent heat loss through radiation, it is necessary to set a safe distance between the baby and these two objects so that the baby is not exposed to cold air. Place the crib as far away from outside walls, windows, and ventilation units as possible (Hockenberry et al., 2017). To prevent heat loss through radiation, close all doors and windows in the delivery room, with a warm room temperature (Room temperature at least 25°) (Damanik & Sitorus, 2020).

3) Conduction

The process of losing heat from the baby's body through direct contact between the skin and solid objects with a lower temperature or cold, for example, placing the baby on a cold and hard table. To avoid heat loss through conduction, babies are given warm clothing and placed on a soft surface. Making skin-to-skin contact by placing the baby on the mother's stomach or chest immediately after birth can save heat removal from the baby's body and create an attachment between the two. This activity also facilitates early breastfeeding initiation (Hockenberry

et al., 2017).

4) Convection

Almost the same as the process of heat loss by conduction; the difference is that the surrounding air currents assist the process of heat loss. Convection is the loss of body heat that occurs when a baby is exposed to cooler ambient air. For example, placing the baby in direct airflow from a fan or air conditioning vent. The process of heat loss through convection can occur quickly. Move the baby to a position that is not directly affected by the airflow from the fan or air conditioner (Hockenberry et al., 2017).

D. Protect from Infection and Injury

Infection is one of the leading causes of newborn death. Infections can be prevented and treated. It is important to remember that small local infections can be widespread and dangerous. Infection prevention is the most important part of every component of newborn care. Newborns are very susceptible to infection because their immune system is still not perfect. The main action to take to prevent cross-infection is that everyone involved in baby care should wash their hands properly. In newborns, eye care, umbilical care, bathing the baby and circumcision treatment are carried out to prevent infection. To care for infants, parents or health professionals are not allowed to use artificial nails (WHO, 2009) and long nails can cause disease transmission. To prevent bleeding, the baby is given an injection of Vitamin K.

Efforts to Prevent Infection in Newborns

- 1) Wash hands thoroughly before and after contact with the baby.
- 2) Wear clean gloves when handling babies who have not been bathed.
- 3) Ensure all equipment, including clamps, scissors, and umbilical cord thread, have been highly disinfected or sterile. If using suction rubber balls, wear clean and new ones, and never use suction rubber balls for more than one baby.
- 4) Ensure that all clothes, towels, blankets, and fabrics used for infants are clean.
- 5) Ensure that scales, tape measure, thermometers, stethoscopes, and other objects that will come into contact with the baby are clean (decontamination and washing after each use).
- 6) Encourage mothers to maintain personal hygiene, especially their breasts, by bathing every day (nipples should not be soaped).
- 7) Clean the face, buttocks, and umbilical cord of the newborn with clean, warm water, and use soap daily.

- 8) Keep the baby away from people suffering from infections, and ensure the person holding the baby has washed their hands beforehand.

Purpose of Newborn Infection Prevention Efforts

- a. Prevention of infection of the eye

Some procedures are conducted to prevent newborns' eyes from infection. First, wash your hand, then wash both eyes with sterile warm water, and dry using sterile cotton or gauze. After that, apply silver nitrate solution (1%), erythromycin (0.5%) ointment or eye drops, or tetracycline (1%) ointment or eye drops (preferably in ampoules or single-dose tubes) to newborns in one of the measures for the maintenance of eye health and prevention of eye diseases. Common eye problems in newborns are ophthalmia neonatorum and conjunctivitis. Larutan Nitrate Agency (1%), (2) Erythromycin (0.5%), and Tetracycline (1%) are effective against gonococcal conjunctivitis but not effective against Chlamydia Trachomatis. The main cause of ophthalmia neonatorum in the United States is Chlamydia Trachomatis. For Chlamydia Trachomatis, a 14-day course of oral erythromycin or ethyl succinate is given. In infants younger than 6 weeks, oral administration of the drug erythromycin is associated with an increased incidence of infantile hypertrophic pyloric stenosis. To anticipate and treat this early, parents need to be educated on the risks and signs of infantile hypertrophic pyloric stenosis (Diseases, 2012).

Another cause of conjunctival infection (conjunctivitis) in neonates is herpes simplex which can be treated using topical and systemic antiviral medications. Growing concerns about antimicrobial resistance to the treatment of ophthalmia neonatorum, then exploration of other alternative substances for the treatment of ophthalmia neonatorum. Colostrum (Ghaemi et al., 2014) and povidone-iodine (2.5%) (Özen Tunay et al., 2015) conducted a study on several infants as samples. However, it has not been proven effective to be an alternative prophylaxis of ophthalmia neonatorum and still requires further substantiation. A study says that in the first hour of life, there is very close eye contact between mother and baby, whereas, in the first hour of life, newborns have a greater ability to focus on coordinated eye movements than in the next few days. The importance of close eye contact to improve the mother-baby emotional bond is delayed, so postpone the administration of silver nitrate or topical eye antibiotics after 1 hour after birth. It must be ensured that the drugs are administered after the baby is 1 hour old.

Vitamin K prevents hemorrhage by catalyzing the synthesis of prothrombin in the liver, which is necessary for blood clotting. Vitamin K is given shortly after the baby is born. Normally, vitamin K is synthesized by the intestinal flora. Giving vitamin K effectively prevents bleeding for 3 to 4 days after birth due to low levels of vitamin K in breast milk, and the baby's intestines are relatively sterile at birth. The recommended vitamin K injection site is in the lateral vastus muscle; it can also be done in the ventrolateral (not dorsal gluteal) muscle. In some countries, bleeding is increased after the baby is a few days old due to vitamin K deficiency (VKDB) after oral vitamin K prophylaxis (Ciantelli et al., 2009). Related to the above, the recommendation of vitamin K prophylaxis to all newborns intramuscularly single dose of 0.5-1.0 mg (Hand et al., 2022).

The administration of the first dose of the hepatitis B vaccine is also carried out immediately after birth to reduce the incidence of the hepatitis B virus in children and its serious consequences (cirrhosis and liver cancer) in adulthood. All newborns born from hepatitis B surface antigen (HBsAg)-negative mothers are given the first dose of hepatitis vaccine immediately after birth and before discharge from the hospital (Diseases, 2012) see box 7-2. Hepatitis B vaccine injection is done in the vastus lateralis muscle because this location is associated with a better immune response than in the dorsal gluteal region. The concentrated oral sucrose administration in infants effectively reduces pain due to injections.

Box 7-2.

Premature babies born to HBsAg-negative women should receive the hepatitis B vaccine (HBsAg) after 30 days, regardless of gestational age or birth weight. Infants born to HBsAg-positive mothers should be immunized within 12 hours of birth with hepatitis B vaccine and hepatitis B immune globulin (HBIG) separately, regardless of gestational age or birth weight (CDC, 2021). In Canada, the hepatitis B vaccine is given to newborns only if their mothers are HBsAg positive at birth.

b. Prevention of infection of the umbilical cord

Neonatal mortality occurs in the first month of life (Wang et al., 2016). WHO (2019) reports that as many as 2.4 million babies die globally in the first month of life, which makes up 47% of all under-five deaths,

with 75% occurring in the first week of life and one-third dying in the first day of life (WHO, 2020). The leading causes of death in neonatal are premature birth, perinatal asphyxia, sepsis, and congenital anomalies. Sepsis is the third leading cause of death in neonates in the first month of life (Coffey & Brown, 2017) and is a major public health problem. Neonates have an increased risk of sepsis due to immature immunity, mothers exposed to group B streptococcal colonization (Özmeral Odabaşı, 2020), and freshly cut umbilical cord that has the potential to become an entry point for microorganisms that cause infections ranging from omphalitis to severe sepsis. The umbilical cord treatment method uses antimicrobial agents that were popular in the past, such as; bacitracin or triple dye, and alcohol or povidone-iodine have been shown to extend the drying and separation time of the umbilical cord (Zupan et al., 2004).

Umbilical cord care is very important because it is an excellent bacterial growth medium and one of the entrances to germs that cause infection. Umbilical cord treatment aims to prevent infection through the umbilical cord. Perawatan tali pusat yang tepat secara signifikan dapat mengurangi morbiditas dan mortalitas neonatal akibat sepsis (Özmeral Odabaşı, 2020). WHO (2013) has recommended using 7.1% chlorhexidine at the base of the umbilical cord whenever treating babies born at home under suboptimal conditions, whereas clean and dry cord care is recommended for newborns born in health facilities and at home with optimal neonatal care conditions. This aligns with research conducted by Reis et al. (2020) recommending the most effective umbilical cord treatment using chlorhexidine 4% sanitation, soap and water, and alcohol antiseptics 70%. Similarly, the results of a report from The Association of Women's Health, Obstetrics, and Neonatal Nursing (AWHOON, 2013) already recommend umbilical cord care be done by cleaning the umbilical cord using sterile water or cleaning the umbilical cord using neutral pH first and then using sterile water. Other studies say that topical breast milk is effective for umbilical cord care. Kirk et al. (2019) mentioned that umbilical cord treatment with topical application of human breast milk is proven to be an effective and safe way to reduce cord separation time. Apart from some of the data and research results above, it is very necessary to pay attention to parents' education level and knowledge about proper umbilical cord care. Turyasiima et al. (2020) mentioned that mothers with sufficient knowledge are closely related to the incidence of umbilical cord infection. The nurse should teach the family how cord care

is performed on the baby in planning the discharge so that parents can continue cord care properly after returning home. Parents are taught how to fold the diaper in the umbilicus area to avoid irritation and wetness due to the baby's urine or when the baby defecates. The umbilicus should remain dry and free of urine and stool. Umbilical cord treatment is carried out daily. The nurse explained the umbilical cord condition after a few days, signs of the umbilical cord drying out, and prediction of the time the umbilical cord will come off. The umbilical cord will break off after 5 to 15 days after birth, and it can take several weeks later for the base of the umbilical cord to heal completely. After the umbilical cord is broken, it is necessary to take care of the base of the umbilical cord to keep it clean and dry and show no signs of infection.

c. Infection Prevention Through Immunization

In certain areas with a high risk of tuberculosis infection, BCG immunization should be given to all newborns. The first dose of polio immunization is given immediately after the baby is born or after the baby is 2 weeks old. The purpose of early polio immunization is to provide early protection against tuberculosis. Hepatitis B immunization is already a national program, although its implementation is carried out in stages. In high-risk areas, hepatitis B immunization is recommended for infants soon after birth.

Principles of Infection Prevention Efforts (Heryani, 2019):

- a) Everyone (mother, newborn, and birth attendant) should be considered contagious because the infection is asymptomatic.
- b) Everyone should be considered at risk for infection.
- c) Surfaces of the examination site, equipment, and other objects that have been used or will be used must be properly carried out in infection prevention processes.
- d) Wash your hands or use an alcoholic/antiseptic hand sanitizer, use protective clothing and gloves.
- e) Clean all parts in the special baby care room.
- f) Separate babies are suffering from infections to prevent nosocomial infections.

E. Maintaining Adequate Nutrition in Infants

Providing optimal nutrition is very important in managing low birth weight or premature babies. However, pediatric nurses face challenges in meeting the nutritional needs of infants. In children born prematurely, the function of the digestive organs is not fully developed; the younger the age of the baby, the greater the problems found. On the other hand, it is difficult to determine precisely how much nutritional needs each baby needs. Remember that all premature babies are at risk of fulfilling nutritional adequacy because the nutritional reserves are very poor, plus some physical characteristics that have not functioned properly. The significant difference between intrauterine conditions and the environment outside the womb forces the baby to be able to adapt quickly. To meet their nutritional needs, babies experience several developments, including oral development, namely the palate, tongue and lips, epiglottis, larynx, and cheeks.

Similarly, the swallowing reflex and sucking reflex have developed according to the baby's gestational age. The swallowing reflex in infants appears at week 32 of gestation, and the sucking reflex appears at week 34, but these two reflexes are not synchronized until 36 to 37 weeks gestation. At the beginning of the development, the ability to suck has not been followed by the ability to swallow, and esophageal contractions have not been coordinated. As a result, the baby is very vulnerable to aspiration and its dangers (Heryani, 2019).

The demands of adequate nutrition for rapid growth and fulfillment of daily needs must be adequately met, even in infants with congenital abnormalities or physiological immaturity. If the swallowing reflex is absent, then providing newborns nutrition is done with an Oral Gastric Tube. If the swallowing reflex is already present, but the sucking reflex is not present, then the newborn is given water with a saucer or spoon. The baby can immediately suckle on the mother if the swallowing and sucking reflexes are present. The size and condition of the baby determine the number and method of feeding. Nutrition can be given parenterally or enterally, or a combination of both. ELBW, VLBW, or critically ill infants often obtain most of their nutrients through the parenteral route due to their inability to digest and absorb enteral nutrients. Conditions of hypoxia or disease (Necrotizing Enterocolitis and rudimentary organ function inhibit enteral absorption of nutrients. Therefore, enteral administration of nutrients is postponed until the baby's condition

stabilizes. To fulfill infant nutrition, nutrition is carried out entirely parenterally for acutely ill babies. Parenteral nutrition with IV solutions is commercially available and specifically designed to meet infants' nutritional needs, including proteins, amino acids, trace minerals, vitamins, carbohydrates (dextrose), and fats (lipid emulsions) (Hockenberry et al., 2017).

The development of the baby's health status and abilities should be strictly evaluated. Premature babies with stable metabolic abilities should be immediately introduced to nutrition through enteral (trophic gastrointestinal priming). Early introduction through test feeding (food with small portions of 1 ml/kg) is useful to stimulate the function of the baby's digestive tract and prevent mucosal atrophy and subsequent enteral feeding difficulties (Figure 7-1). In premature infants, breastfeeding or formula can be given through gavage as soon as the baby is medically stable. Parenteral nutrition is continued until the baby can tolerate sufficient amounts of enteral food to sustain growth. The increased incidence of NEC in VLBW infants receiving minimal enteral nutrition has not been demonstrated (Heryani, 2019). Necrotizing enterocolitis (NEC) is a multifactorial disorder often occurring in premature infants. Breastfeeding has been shown to reduce the incidence of NEC in premature infants compared to formula feeding. Enteral feeding did not affect the increased incidence of NEC in premature infants. Human milk-based fortifiers reduce the incidence of NEC compared to cow's milk-based fortifiers (Asma Akbar et al., 2023).



Figure 7-1. Nipple feeding the preterm infant. A, The infant is first brought to a quiet alert state in preparation for feeding. B, After readiness is demonstrated, the infant is nipple fed. (Courtesy of Jeff Barnes, Education and Eastern Oklahoma Perinatal Center, St. Francis Hospital, Tulsa, OK.) (Hockenberry et al., 2017)

Minimal enteral feeding has been shown to increase mineral absorption and intestinal hormone activity and substantially reduce the incidence of food intolerance in premature infants. Minimal enteral feeding is recommended as a standard of care for feeding VLBW babies. Although the timing of the first feeding has been a matter of controversy, most authorities now believe that early feeding (provided the baby is medically stable) reduces the incidence of complicating factors, such as hypoglycemia and dehydration, and the rate of hyperbilirubinemia (Hockenberry et al., 2017).

Breastfeeding

Breast milk is an emulsion of fat in a solution of protein, lactose, and organic salts secreted by both sides of the mother's breast glands as the main food for the baby. Facilitation of mothers in providing breast milk as early as possible (within 30 minutes–1 hour after birth) and exclusively. Explain the benefits of early and exclusive breastfeeding. Breast milk contains nutrients necessary for a baby's growth and development, is easily digested and efficient, prevents various infectious diseases, prevents pregnancy (lactational amenorrhea method), and supports mother and baby bonding (Heryani, 2019). If when breastfeeding the baby, breast milk has not come out, do not give food or drink in any form, and keep the baby breastfeeding to stimulate the release of breast milk. Nutrient reserves in the body of full-term babies can be used for 4 days postpartum. Avoid replacing breast milk with complementary foods unless there is a medical indication; for example, breast milk does not come out, premature babies, and so on. Newborns should not be given breast milk only on strict medical indications, such as mothers with certain infectious diseases and babies who have not been exposed (Hockenberry et al., 2017).

Breastfeeding should be recommended to every mother who gives birth because:

- a) The first breast milk (colostrum) contains several antidotes (antibodies) that can prevent infant infection.
- b) Babies who drink breast milk rarely suffer from gastroenteritis.
- c) Fats and proteins in breast milk are easily digested and absorbed completely in the digestive tract; breast milk is the best milk for growth and does not cause baby obesity. In line with formula, formula use in infants has been shown to contribute to overweight and

childhood obesity. (Cheng et al., 2022) The lack of advice and support given to parents to breastfeed their babies causes formula feeding to be the top choice.

- d) The chances of the baby suffering from seizures due to hypocalcemia are very few.
- e) Breastfeeding is the only best way to strengthen the relationship between mother and baby.
- f) Breast milk is a natural artificial milk that is better than artificial milk.

The process of breast milk formation

The hormone prolactin from the placenta increases during pregnancy but usually, breast milk has not come out because it is still inhibited by high estrogen levels. On the second or third day postpartum, estrogen and progesterone levels drop dramatically. Hence, the influence of prolactin is more dominant, and at this time, the secretion of breast milk begins to occur. The process of early breastfeeding stimulates the nipples encouraging the formation of prolactin from the pituitary so that the secretion of breast milk is smoother.

Two reflexes that are very important in the lactation process are the prolactin reflex and the flow reflex (let down reflex).

1) Prolactin reflex

When the baby suckles, the tactile nerve endings found in the nipple are aroused. The stimulation is carried by the hypothalamic afferent fibers at the base of the brain, then spurs the anterior pituitary to secrete prolactin into the blood; through circulation, prolactin spurs glandular cells (alveoli) to produce milk. The amount of prolactin secreted and the amount of milk produced is related to the suction stimulus, i.e., the frequency, intensity, and duration of the baby's sucking.

2) Let down reflex

The stimulation generated by the baby while breastfeeding, in addition to affecting the anterior pituitary secreting the hormone prolactin, also affects the posterior pituitary releasing the hormone oxytocin. Oxytocin released into the blood will spur the smooth muscle surrounding the alveoli and ductus to contract, thus squeezing milk from the alveoli, ducts, and sinuses into the nipple. The mother can feel the letdown reflex as a tingling sensation (Figure 7-2).

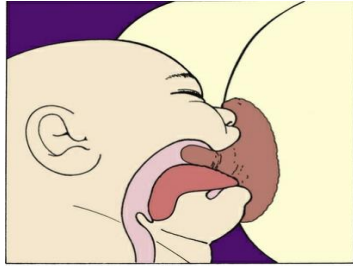


Figure 7-2. The tongue is under the areola, with the tip of the nipple at the back of the wide-open mouth. (Hockenberry et al., 2017)

The composition of breast milk (Heryani, 2019)

The composition of breast milk is not the same over time, depending on the stage of lactation, namely:

- 1) Colostrum
 - a) Breast milk is produced on the first to third day after the baby is born. Colostrum is a relatively thick yellowish liquid, more yellow than mature breast milk; its shape is rather rough because it contains fat grains and epithelial cells, with the following properties: As a cleanser of the intestinal membrane of the newborn so that the digestive tract is ready to receive food.
 - b) It contains high protein levels, especially gamma globulin, to protect the body against infection.
 - c) It contains antibodies that can protect the baby's body from various infectious diseases for a period of up to 6 months.
- 2) Breast milk, during the transition period, is produced from day four to day ten.
- 3) Mature breast milk, produced from day ten onwards.
- 4) Vitamin D in breast milk varies greatly depending on the type of food consumed and exposure to ultraviolet light.

Nursing alert: Poor feeding behaviors such as apnea, bradycardia, cyanosis, pallor, and decreased oxygen saturation in any infant who has previously fed well may indicate an underlying illness.

The nurse must observe preterm infants closely for behaviors that indicate readiness for oral feedings. These include:

- A strong, vigorous suck

- Coordination of sucking and swallowing
- A gag reflex
- Sucking on the gavage tube, hands, or a pacifier
- Rooting and wakefulness before and sleeping after feedings

When these behaviors are noted, infants can be challenged with oral feedings that are introduced slowly.

Some measures that hinder breastfeeding of infants;

- a) More aggressive marketing of infant formula to the public
- b) The mother's discharge is earlier than the baby's return
- c) Working mothers
- d) In hospitals that do not enforce mother-infant hospitalization, babies are treated separately. Rooming in is positively correlated with breastfeeding success and vice versa.
- e) Early feeding of formula using pacifiers by health professionals, where the use of pacifiers causes weaning to occur earlier and the transition from breast to pacifier.
- f) Early initiation of breastfeeding is not carried out, so mothers are late in breastfeeding their babies, causing milk production to be not smooth
- g) The hospital provides infant formula.
- h) The hospital provides formula milk as a souvenir for the very discharge of babies
- i) Lack of information and education from health workers about the benefits of breast milk
- j) Formula milk coupons are given when the baby returns home from the hospital and others

Mothers stop breastfeeding early due to problems with lactation production, concerns with the health of the newborn or mother, and lower maternal education (Brown et al., 2014). Professional support and social support greatly reduce the risk of early termination of breastfeeding (Van et al., 2019) Nurses need to provide education and discussion about lactation preparation during pregnancy and breastfeeding during and after pregnancy. (WHO and UNICEF, 2021) affirm that each baby is exclusively breastfed until 6 months of age, continuing until 1 year and as long as mother-baby want each other. The

Baby-Friendly Initiative (BFI) is a funder of the World Health Organization and Children's Nations that encourages, promotes, and supports breastfeeding as the best nutrition for infants. Working mothers are encouraged to continue breastfeeding their babies after returning home. BFI program as a guideline for caregivers worldwide to promote breastfeeding (World Health Organization & United Nations Children's Fund (UNICEF), 2009).

Ten Steps to Successful Breastfeeding;

Any facility that provides maternity services and newborn care must:

- a) Have a written breastfeeding policy that is routinely communicated to all healthcare staff.
- b) Train all healthcare staff to have the skills to implement these policies.
- c) Inform all pregnant women about the benefits and management of breastfeeding.
- d) Help the mother start breastfeeding within an hour after birth.
- e) Show mothers how to breastfeed and maintain lactation even if they have to be separated from their babies.
- f) Newborns are not given food or drink other than breast milk unless medically indicated.
- g) Rooming-in is done to allow mother and baby to stay together for 24 hours a day.
- h) Encourage breastfeeding every time your baby wants
- i) Do not give artificial pacifiers or pacifiers (also called dolls or soothers) to breastfeed babies.
- j) Encourage the establishment of breastfeeding support groups, and refer mothers to join groups after discharge from hospital or maternity clinics.

Data from World Health Organization, United Nations Children's Fund, and Wellstart International: Baby-friendly hospital initiative: revised, updated and expanded for integrated care, 2009, or [click here](#).

Breast milk is not sterile, but healthy full-term babies can tolerate varying amounts of nonpathogenic and pathogenic organisms. Breastfed babies, especially over 2 to 3 months of age, tend to achieve satisfactory growth rates but slower than formula-fed babies (Hockenberry et al., 2017).

Three main criteria for positive breastfeeding;

- 1) Unscheduled breastfeeding (ad-libitum = as the baby wishes)
- 2) Correct attachment between baby's mouth and areolar
- 3) Correct breastfeeding techniques (mouth wide open, tongue under the areola, and excretion of milk according to effective alveolar compression)

Promotional interventions;

- 1) Early breastfeeding soon after birth (early initiation of breastfeeding)
- 2) Direct modeling of the importance of breastfeeding by healthcare workers
- 3) Breast milk without supplementation formula
- 4) Reduce access to infant formula products
- 5) Increased support to mothers after discharge (follow-up phone)
- 6) Early breast pumping every 2 to 3 hours for 10 to 15 minutes bilaterally if the newborn is unable to feed immediately

In one study that examined formula feeding, it was found that as many as 77% of mothers who gave formula milk to their babies said they had never received counseling from health professionals about procedures for preparing and feeding formula milk for their babies so that mothers did not wash their hands, did not rinse bottles are clean and do not sterilize, and do not wash milk nipples properly, including improper storage and heating of breast milk (Appleton et al., 2020). Parents who choose bottle feeding instead of breast milk for their babies also need support and help to meet their baby's needs. Fulfilling newborn nutritional intake is one aspect of the baby's many needs. The mother can hold and hug the baby's body while shaking it as long as the baby drinks formula from the bottle. At this time, the mother can ascertain whether the baby has a good appetite or vice versa so that the mother can evaluate the emotional state of the baby. Just as babies who get breast milk directly from the mother, babies who get milk from a bottle also want to enjoy it in the arms and lap of the mother. Babies who get their mother's arms while drinking milk from a bottle will feel different emotional stimuli (Figure 7-3A dan Figure 7-3B).



Figure 7-3A. Father is feeding a preterm infant. (Photo courtesy of E. Jacobs, Texas Children's Hospital, Houston, TX) (Hockenberry et al., 2017)



Figure 7-3B. Simultaneous breastfeeding of twins (Hockenberry et al., 2017)

The baby can enjoy more comfortably, sucking vigorously for the first 5 minutes and then continuing to suck slowly without rushing until satisfied. During feeding, babies enjoy oral gratification. In a day, at least, the baby needs 6 feedings. For each feeding, the baby spends about 20 minutes, and per day takes 2 hours.

Newborns who get fresh cow's milk or formula are at risk of iron deficiency anemia due to intestinal bleeding. Intestinal bleeding is triggered by high protein, low fat, and lipid content in fresh cow's milk. Its protein content also triggers an increase in cases of allergies in early childhood. Industries that develop cow's milk-based formulas commercially have modified the basic elements in cow's milk to resemble nutritional elements in breast milk. Formula milk is made from whole cow's milk, changed by removing butterfat, adding vegetable oil and carbohydrates, and reducing the amount of protein content. A standard cow's milk-based formula containing almost the same composition of vitamins, minerals, proteins, carbohydrates, and essential amino acids with slightly different compositions, such as carbohydrate source bases, nucleotides to improve immune function, and long-chain polyunsaturated fatty acids (LCPUFAs), DHA and AA. Not all formula milk contains DHA and AA, while breast milk contains large amounts of DHA and AA. Formula milk containing DHA and AA has been shown to improve brain function and visual acuity in premature and full-term infants compared to

premature and full-term infants who consume formula without DHA and AA (Wang & Chen, 2013).

Main Categories of Commercial Formula Milk for Infants;

- 1) Formula based on cow's milk, available in 20 kcal/fl oz as liquid (ready to eat), powder (requires reconstitution with water), or concentrated liquid (requires dilution with water);
- 2) Soybean-based formula, commercially available in 20 kcal/fl oz ready-to-eat powder and concentrated liquid form, commonly used for children who are lactose intolerant or cow's milk protein; The American Academy of Pediatrics Committee on Nutrition recommends the use of soy protein-based formulas for infants with galactosemia and hereditary lactose intolerance as well as preferred vegetarian dietary choices (IDAI, 2016).
- 3) Casein or whey-hydrolysate formulas, commercially available in ready-to-eat and powdered form and used primarily for children who cannot tolerate or digest cow's milk or soy-based formulas;
- 4) Amino acid formula.

To increase parents' awareness in choosing formula milk, it is mandatory for all companies that produce formula milk to provide product books related to the purpose and content of each formula. Formula milk is given as a follow-up to exclusive breastfeeding after the baby is 6 months old, along with supplementary feeding. Formula for infants older than 6 months has higher calories from protein and carbohydrate sources, higher amounts of iron and vitamins, and lower amounts of fat than standard cow's milk-based formulas.

Preparations to be made in formula feeding for infants;

- a) Wash bottles and all supplies used to prepare formula feeding using soap and water.
- b) Sterilize bottles and nipples using a dishwasher, electric steam sterilizer, microwave, or chemical sterilizer), following the manufacturer's instructions.
- c) Sterilization can also be done by immersing bottles, putting milk, and all tools needed in a clean state into boiling water.
- d) Infant formula in powder form is not sterile, so in its presentation, milk powder is dissolved using boiling water that has been cooled at 70 ° C to reduce the risk of disease because, at this temperature,

Cronobacter and other pathogens can be deactivated (Long et al., 2012)

- e) Mineral water is not recommended to be used to dissolve formula milk because it is considered not sterile. Mineral water should be brought to a boil before use to dissolve infant formula.
- f) Do not change the composition of water and milk powder at the time of dilution except on special instructions from a professional.
- g) Follow the formula feeding instructions according to the composition recommended in the manufacturer's instructions for preparing formula feeding to ensure that the baby gets enough calories and fluids for adequate growth.
- h) Milk powder and concentrated formula that have been prepared are immediately put in the cooling machine if not immediately consumed by children.
- i) Milk left in the bottle after baby consumption should not be given again the next time because milk is an excellent growth medium for bacteria (Box 7-3).
- j) In the ready-to-eat formula, if the milk does not run out in one feeding, it must be immediately closed and stored in a refrigeration machine until the next administration to avoid Cronobacter contamination that can cause child death.
- k) Especially for formula milk products for newborns, there are instructions for preparing and using formula milk accompanied by pictures and symbols so that it is easily known to individuals who cannot read. In addition, instructions are available in various languages, such as Vietnamese and Spanish, to prevent errors in preparing formula milk for newborns.

Box. 7-3. Nursing Alert

<p>Families need to know that it is strictly forbidden to change the proportion of formula milk servings by;</p> <ul style="list-style-type: none">— adding water to increase the volume of formula milk or— adding milk powder to add more calories to the rest of the formula.

Alternate Milk Products

Ideally, babies are fed when babies feel hungry. Babies show a desire to eat when the baby feels hungry. When a baby shows a desire to eat, it means the baby is ready to eat. In formula-fed infants, scheduled feeding at predetermined intervals can be satisfying, unlike the case with babies who are breastfed. Breastfed babies tend to be hungry every 2 to 3 hours because breast milk is easily digested, so ideally, babies are fed on demand instead of according to a predetermined schedule. Scheduled feeding can hinder the breastfeeding process.

Breast milk production depends on the breast being emptied at each feeding. Mothers who do not breastfeed their babies and allow milk to accumulate in the breast will cause breast swelling and pressure on blood vessels in the breast, causing ischemia, then suppress the activity of acini, or milk-secreting cells. Suppression of acini activity, namely cells that secrete breast milk, reduces milk production. The activity of the baby sucking from the mother's nipple and from the bottle is very different. Sucking formula from a bottle with a hard rubber nipple will block the tongue's movement from the usual rhythm. Babies learn to place the tongue on the tip of the nipple to slow the faster flow of fluid. When the baby uses the same tongue movements during breastfeeding, the baby will push the mother's nipple out of his mouth and cause the improper attachment of the areola. Usually, by the age of 3 weeks, lactation is well established. Bottle-fed infants consume about 2 to 3 ounces of formula each time they feed with Frequency six times a day. The amount of formula milk consumed is based on caloric needs of 108 kcal/kg/day; Therefore, a newborn weighing 3 kg needs 324 kcal/day. The commercial formula has 20 kcal/oz, about 16 oz (480 ml), providing daily caloric needs. Breastfed babies can breastfeed as often as possible with a frequency of 10 to 12 times a day.

Five-Stage Feeding Behavior

This behavior will be seen while feeding the baby. Recognizing these five-stage feeding behavior steps can assist nurses in identifying potential feeding problems caused by improper feeding techniques.

- 1) Pre-feeding behavior; encouraging the baby to hold the breast properly. Babies exhibit crying or fussy behavior, indicating the baby's arousal and hunger level. The mother should start breastfeeding when

the baby is on alert and calm before the baby feels hungry and becomes angry.

- 2) Approach behavior; The baby shows sucking movements or rooting reflexes.
- 3) Attachment behavior; begins as early as the baby receives nipples and sucking (sometimes more pronounced during early attempts at breastfeeding).
- 4) The behavior of refinement; The baby's coordinated sucking and swallowing activities. Persistent choking indicates unsuccessful refinement behavior.
- 5) Satiety behavior; can be observed when babies let their parents know they are satisfied; usually, babies fall asleep.

SUMMARY

Newborns must be able to adapt rapidly soon after birth because the characteristics of the extrauterine environment are very different from the characteristics of the intrauterine environment. Adaptability often fails, especially in premature babies, babies with severe disease, or babies born with congenital abnormalities. Managing essential neonates is very important to support the baby during the adaptation period. Very significant changes stimulate all body systems to adapt. While in the womb, the baby does not use the respiratory organs because the baby gets oxygen from the mother through the placenta, and immediately after birth, the baby must use all organs of the respiratory system to meet oxygen needs. Similarly, the digestive organs, during the womb, the baby gets the supply of nutrients from the mother through the placenta. However, after the baby is outside the womb, the baby must use the organs of the digestive system to get nutrients. Nutritional needs must be met immediately for adaptation purposes and for the baby's growth and development needs. The immature thermoregulation system makes babies susceptible to hypothermia. If hypothermia is not appropriately treated, it can result in various health problems in the baby and lead to death. Babies need support to maintain a normal body temperature. Babies obtain nutrition as a source of energy and metabolism of the body through oral, enteral, and parenteral. Babies who do not have good coordination of suction reflexes and swallowing reflexes cannot be given nutrition orally. Enteral feeding of nutrients is postponed until the baby is in stable condition. Enteral nutrition is carried out gradually, which

functions as test feeding. With adequate management of essential neonates, the baby can go through the adaptation stage immediately after birth, achieving optimal growth and development.

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NCLEX REVIEW QUESTIONS

1. Regulatory relationships can occur through various mechanisms; such mechanisms are called...
 - A. Neurological mechanisms
 - B. Cardiovascular mechanisms
 - C. Hypothalamic mechanism
 - D. Neurological and cardiovascular mechanisms
 - E. Cardiovascular mechanisms
2. Heat loss prevention can be done in various ways, namely...
 - A. Clean and open delivery room
 - B. The baby’s body is dried after birth
 - C. Put the baby in the baby box
 - D. Bathing the baby with warm water
 - E. Make bright lighting in the delivery room

3. A new mother gives birth to the first child. so that the baby does not Quickly lose body heat; what to do immediately...
 - A. Early initiation of breastfeeding
 - B. Bathing the baby
 - C. Swaddling the baby
 - D. Holding the baby
 - E. Making baby head coverings

4. A mother gave birth 1 hour ago. Then the baby is treated with the mother in an air-conditioned room; it will cause the baby to lose heat throughout the way...
 - A. Evaporation
 - B. Conduction
 - C. Convection
 - D. Radiation
 - E. Body temperature

5. A mother has just given birth; the baby is still wet because it is exposed to amniotic fluid and has not been cleaned. This will cause the baby to lose heat quickly through the means of...
 - A. Evaporation
 - B. Conduction
 - C. Convection
 - D. Radiation
 - E. Body temperature

6. A baby is born in (independent practice), the state of birth time is healthy, born immediately crying, then carried out baby care immediately after birth. In caring for babies, nurses pay great attention to the principle of infection prevention. What the principles means is...
 - A. The baby is cared for together with the mother
 - B. Wash hands before and after caring for baby
 - C. Always wear full personal protective equipment
 - D. Everyone can always transmit the infection
 - E. Limit visitors

7. A baby born in (independent practice) is born directly crying, BB 3250 grams, PB 50 cm. Further preventive measures are carried out for skin infections. The truth regarding the actions of the case above is...
- A. Baby warmed
 - B. Putting the baby on the mother's chest
 - C. The baby is placed next to the mother
 - D. The baby is placed separately from the mother
 - E. Baby placed in a box
8. A woman with the initials Mrs. Z has a 2-day-old baby and is determined to give exclusive breastfeeding to her baby because breast milk has a big role in the baby's brain growth. The nutritional content in breast milk so that the baby's brain growth can be maximized is...
- A. High lactose content
 - B. High calcium levels
 - C. High zinc content
 - D. High immunoglobulin levels
 - E. High mineral content
9. A baby born in (independent practice) after birth immediately cries. After birth, the baby is drained of amniotic fluid so as not to lose heat and stable body temperature. This newborn baby has not been able to regulate the temperature, so it will experience cold stress due to entering the delivery room, which is cooler temperature. The baby's effort in the above case is...
- A. Temperature formation without shivering mechanism
 - B. Temperature formation by shivering mechanism
 - C. Increased metabolism by shivering mechanism
 - D. Increased metabolism without shivering mechanism
 - E. Improved mechanism and shivering
10. A baby born in (independent practice) is assisted by Midwives and nurses. Babies are born spontaneously behind the head, born directly crying. Nurses pay attention to the adaptation of newborns, especially the most real and rapid adaptation babies, among others, to the respiratory and circulatory systems. To help babies born to stay healthy and hypoxia does not occur, the following nurses must pay attention to related to the case above is...

- A. Lung development continues from birth to 2 years of age
- B. Lung development continues from birth to age 4
- C. Lung development continues from birth to age 6 years
- D. Lung development continues from birth to age 8 years
- E. Lung development continues from birth to age 9



CHAPTER 8

THE CONCEPT OF NURSING CARE IN CHILDREN WITH IMPAIRED FULFILLMENT OF PATHOLOGICAL NUTRITIONAL NEEDS OF THE DIGESTIVE SYSTEM: PROTEIN-CALORIE DEFICIENCY

INTRODUCTION

In this chapter, the topic of pathological nutritional fulfillment disorders of the digestive system in children will be discussed, namely children with disorders of lack of meeting protein nutritional needs such as marasmus and kwashiorkor. To be able to understand the material in this chapter better, you are required to study anatomy and physiology, especially in the digestive tract. This chapter discussed what can cause protein nutrition deficits in children and how to prevent protein loss. To better understand what a pediatric nurse should do to deal with this problem, this chapter describes Nursing Care Less Protein Calories. Nursing Care Fewer Protein Calories consists of assessments: Anamnesis in children with less protein calories, Physical examination of Less Calorie Protein, Diagnostic and Laboratory Tests Less Protein Calories. The following steps are Nursing Problems of Children with Impaired Nutritional Needs on Less Protein Calories, Nursing Plan Meets Nutritional Needs in Children with Fewer Protein Calories, Implementation in Children with Fewer Protein Calories, and Evaluation of Nursing Care in Children with Fewer Protein Calories.

KEY TERMS

1. Protein calorie
2. Deficiency
3. Kwashiorkor
4. Marasmus

LEARNING OBJECTIVES

After completing this learning activity, it is expected to be able to:

1. Explaining the Concept of Protein Calories
2. Explaining the Concept of Deficiency Protein Calories
3. Explaining the Concept of Kwashiorkor
4. Explaining the Concept of Marasmus
5. Apply the nursing care to children with deficiency protein calorie problems

A. Nursing Care in Children with Protein Calorie Deficiency

1. Definition

Protein calorie deficiency is a severe form of malnutrition in Indonesia and other developing countries. The highest prevalence is found in children under five and pregnant and lactating women. Protein Calorie Deficiency will occur when the body's need for protein calories or both is not fulfilled. Protein calorie deficiency results from a low energy and protein intake in the daily diet, so it does not meet the recommended intake. The grouping of CTF is based on weight index according to age, height according to age, weight according to height, and body mass index based on age (Kasminah, 2019). Protein is caused by a general lack of eating energy sources and a lack of protein sources. In children, it can inhibit growth, susceptible to diseases, especially infectious diseases, and result in low levels of intelligence. Protein is classified under malnutrition, undernutrition, and good nutrition (Kasminah, 2019). Poor nutrition occurs due to a lack of caloric intake from either carbohydrates or protein. Energy deficiency greatly affects the work of each organ of the body. This state of malnutrition is clinically divided into three types: kwashiorkor, marasmus, and marasmus-kwashiorkor. Kwashiorkor and marasmus cannot be clearly defined according to differences in lack of intake of certain foods but can be observed from the symptoms indicated by the patient.

a) Kwashiorkor

Kwashiorkor is a state of lack of protein intake, also called hungry edema. Some characteristics of kwashiorkor according to (Ichwan, 2020).

1. Mental changes can be noticed when the child cries a lot, and at an advanced stage, the child looks very passive.
2. Patients look weak and not excited because of a lack of energy sources, namely protein.
3. Diarrhea with liquid stools containing lactic acid due to decreased lactase production and other vital fluids.
4. The skin condition begins with red patches resembling small hemorrhages that appear as purple-red nodules that gradually turn black. This disorder can be found around the back, buttocks, etc. (Figure 8-1).

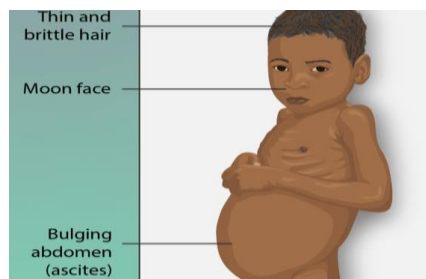


Figure 8-1. Children with kwashiorkor

Marasmus

Marasmus is classified as primary malnutrition due to a lack of calories. Cases of marasmus or malnutrition due to lack of carbohydrates accompanied by swelling of the hands and feet (Figure 8-2).

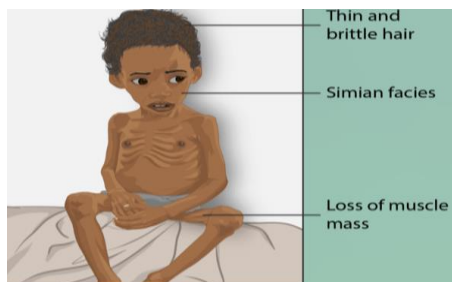


Figure 8-2. Children with marasmus

Marasmus has the following clinical features:

1. Wrinkled skin
2. Blood pressure, heart rate, and reduced breathing
3. An old man-like face.
4. Accompanied by chronic diarrhea or constipation/difficulty passing
5. Her weight is less than 60% of the weight of a normal child her age.

Marasmus' problems often arise due to unfavorable social problems, poverty, infections, pathogenic microorganisms that cause diarrhea,

Etiology

1. Lack of nutritional intake from food because the food consumed does not contain the necessary nutrients.
2. Ignorance of parents towards providing good nutrition for children
3. Factors of congenital diseases in children, such as heart disease, tuberculosis, HIV/AIDS, diarrhea, and so on
4. Family economic factors
5. Factors of imbalance of nutritious and affordable food by the community.
6. Poor management and inadequate health care.

Prevention of Less-Calorie Protein

Divided into three, namely: primary, secondary, and tertiary prevention (Rahayu et al., 2019).

1. Primary Prevention

1. Health Promotion is an activity carried out before a health problem occurs and includes protection, carried out through community nutrition counseling at the Public Health Center and outside the Public Health Center about the importance of nutrition.
- 1) Specific prevention can be done by feeding foods containing calories and protein in children and giving vitamin A capsules to prevent vitamin A deficiency in infants and toddlers.

2. Secondary Prevention

Secondary prevention is indicated for examining and detecting health or knowing each individual's medical condition. Early detection can

prevent the onset of the disease and stop or slow the progression of the disease.

a) Early detection

Early detection aims to determine the presence or absence of abnormalities or developmental disorders in children caused by a lack of protein calories. Early detection aims to provide knowledge and understanding and pay attention to the nutritional development status of children.

Some things that can be done in early detection of children:

- 1) Monitoring the growth and development of toddlers by weighing and integrated services available at posyandu.
- 2) Monitoring infants with low body weight, less energy calories, less calories protein, and monitoring nutritional status.
- 3) Monitoring family food consumption patterns
- 4) Monitoring of the mother from the time of pregnancy to childbirth
- 5) Supervision of iodized salt and distribution of iodine capsules.

3. Tertiary Prevention

Tertiary prevention is part of the effort to restore individual performance to its full function.

The efforts made are as follows:

- 1) Further health education
- 2) Service to the community.

Overcoming Poor Nutrition Linked to Fewer Protein Calories

1) Nutritional Intake

Intake of nutritional needs obtained from direct food is better than intake of supplements that are sold freely without a doctor's advice. Supplements must have a doctor's prescription to guarantee their safety, so they are dangerous if consumed freely. Children aged 0-2 years should get breast milk intake because it contains all the nutrients needed to develop their brains.

2) Treatment Steps

Treatment of protein-calorie deficiency should be adjusted to its level. Patients with mild-stage protein lack of calories are overcome by improving nutrition daily; children need to consume about 23 grams of

protein and 100-150 kcal. Treatment of less caloric protein weight tends to be more complex because each comorbidity must be required individually. The patient needs to be hospitalized for adequate medical care. The child's nutritional status should still be monitored by treating comorbidities and improving nutritional levels (Intani et al., 2019).

Nursing Care Less Protein Calories

a. Assessment

1. Anamnesis in children with less protein calories
 - a. Biological data includes: Identity of the patient and Identity of the insurer
 - b. Medical history:
 - a) Past medical history. Whether the child used to have nutritional disorders.
 - b) Current medical history. In general, children enter the hospital with complaints of growth disorders (weight loss is getting longer), swelling of the limbs, frequent diarrhea, and other complaints that indicate malnutrition.
 - c) Family history includes an assessment of family composition, home, and community environment, education and work of family members, functions and relationships of family members, culture and beliefs, behaviors that can affect health, family perceptions of the patient's illness, and others.

2. Physical Examination of Less-Calorie Protein

A physical assessment or physical examination is an ongoing process that begins during an interview, primarily with the use of inspection or observation. The physical examination includes:

- 1) Inspection: examination techniques involving the use of vision, hearing, and life in systematic assessment of infants and children.
- 2) Palpation: an assessment technique using fingers and palms to determine temperature, hydration, texture, shape, movement, and areas of tenderness.
- 3) Percussion: a technique of assessing beats to produce sound waves characterized by intensity, pitch, duration, and quality.
- 4) Auscultation: examination techniques by listening to body sounds using a stethoscope, for example, cardiovascular sounds and sounds from the diaphragm, lungs, and intestines.

3. Diagnostic and Laboratory Tests Fewer Protein Calories

- a) Blood tests, namely: Hemoglobin, albumin, globulin, total electrolyte protein, and urine. The results of this blood test can show indications of the possibility of a more severe state of malnutrition.
- b) Anthropometry is the measurement of body dimensions and body composition of various age levels and nutritional levels. Anthropometry is generally used to see the imbalance of protein and energy intake. This imbalance is seen in physical growth patterns and proportions of body tissues such as fat, muscle, and the amount of water in the body.
- c) This method is based on the changes that occur associated with nutrient insufficiency, which can be seen in superficial epithelial tissues such as the skin, eyes, hair, and oral mucosa or in organs close to the surface of the body such as the thyroid gland to detect quickly common clinical signs of deficiency of one or more nutrients.

b. Nursing Problems of Children with Impaired Nutritional Needs on Less Protein Calories

1. Nutritional Deficit

A nutrient deficit occurs when nutrient intake is insufficient to meet metabolic needs.

2. Etiology:

- 1) Inability to absorb nutrients
- 2) Increased metabolic needs
- 3) Economic factors (for example: insufficient finances)
- 4) Psychological factors (e.g., stress, reluctance to eat).

3. Major symptoms and signs include: weight loss at least 10% below the ideal range

4. Minor symptoms and signs (Subject: rapid satiety after eating, cramps/abdominal pain, and decreased appetite. Objective: hyperactive intestinal noise, weak chewing muscles, weak swallowing muscles, pale mucous membranes, canker sores, serum albumin drops, excessive hair loss, and diarrhea (SDKI, 2017)

2. Risk of Infection

- 1) Infection risk is defined as children being at increased risk of developing pathogenic organisms.
- 2) Risk factors
 - a) Chronic diseases (e.g., diabetes mellitus)
 - b) Effects of invasive procedures
 - c) Malnutrition
 - d) Increased exposure to environmentally pathogenic organisms
 - e) Inadequate defenses of the primary body, such as peristaltic disorders, damage to the integrity of the skin, changes in Ph secretion, and decrease in ciliary work.
 - f) Inadequate secondary body defenses, such as decreased hemoglobin, immunosuppression, leukopenia, suppression of inflammatory responses, and inadequate vaccination (SDKI, 2017)

Risk of Developmental Disorders

1. The risk of developmental disorders is a condition in which children are at risk of developing developmental disorders according to their age group.

Risk Factors (SDKI, 2017):

- a) Inadequate nutrition
- b) Inadequacy of prenatal care
- c) Delay in prenatal care
- d) Pregnant age under 15 years
- e) Pregnant age over 35 years
- f) Unplanned pregnancy
- g) Unwanted pregnancy
- h) Endocrine disorders
- i) Prematurity
- j) Genetic/congenital disorders
- k) Brain damage
- l) Chronic diseases
- m) Infection
- n) Side effects of therapy (e.g., chemotherapy, radiotherapy, pharmacological agents)
- o) Abuse (physical, psychological, and sexual)
- p) Hearing loss

- q) Visual impairment
- r) Substance abuse
- s) Learning disabilities
- t) Adopted children
- u) Disaster scene
- v) Economic problems

Risk of Growth Disorders (SDKI, 2017)

1. The risk of growth disorders is a condition in which children are at risk of experiencing growth disorders according to their age group.
2. Risk factors
 - a) Inadequate nutrition
 - b) Chronic diseases
 - c) Uncontrolled appetite
 - d) Premature
 - e) Teratogen exposure
 - f) Inadequate maternal nutrition
 - g) Infection process
 - h) Maternal infection process
 - i) Maladaptive feeding behavior
 - j) Substance abuse
 - k) Genetic disorders
 - l) Abuse (physical, psychological, and sexual)
 - m) Weak economy.

Knowledge Deficit (SDKI, 2017)

1. The definition of knowledge deficit is a child's lack of knowledge related to cognitive information related to a particular topic.
2. Etiology:
 - a) Cognitive toppings
 - b) Impaired cognitive function
 - c) Willingness to follow recommendations
 - d) Less exposure to information
 - e) Lack of interest in learning
 - f) Less able to remember
 - g) Ignorance of finding sources of information

3. Major Symptoms and Signs

Objective:

- a) Exhibiting inappropriate behavior
- b) Showing a misperception of the problem

4. Minor Symptoms and Signs

Objective:

- a) Undergoing improper examination.
- b) Exhibiting excessive behavior (e.g., apathy, hostility, agitation, hysteria).

c. Nursing Plan Meets Nutritional Needs in Children with Less Protein Calories (SIKI PPNI, 2018)

1. Nutrition Management.

1) Observation:

- a) Identify nutritional status.
- b) Identification of food allergies and intolerances.
- c) Identify preferred foods.
- d) Identify calorie needs and nutrient types.
- e) Identify the need for the use of nasogastric hoses.
- f) Monitor food intake.
- g) Weight monitor.
- h) Monitor laboratory test results.

2) Therapeutic:

- a) Perform oral hygiene before eating, if necessary.
- b) Facilitation of determining dietary guidelines (e.g., food pyramid)
- c) Serve food attractively and at the right temperature.
- d) Give high-fiber foods to prevent constipation.
- e) Give foods that are high in calories and high in protein.
- f) Give dietary supplements (if necessary).
- g) Stop feeding through the nasogastric tube if oral intake is tolerated.

3) Education:

- a) Suggest a sitting position, if able.
- b) Teach a programmed diet.

4) Collaboration:

- a) If necessary, medication before meals (e.g., pain relievers, antiemetics).
- b) Collaboration with nutritionists to determine the number of calories and types of nutrients needed.

1. Infection Prevention.

1) Observation:

Monitor signs and symptoms of local and systemic infection.

2) Therapeutic:

- a) Limit the number of visitors.
- b) Give skin care to areas of edema.
- c) Wash hands before and after contact with the patient and the patient's environment.
- d) Maintain aseptic techniques in high-risk patients.

3) Education:

- a) Describe the signs and symptoms of infection.
- b) Teach how to wash your hands properly.
- c) Teach cough etiquette.
- d) Teach how to check the condition of a wound or surgical wound.
- e) Recommend increasing nutrient intake.
- f) Recommend increasing fluid intake.

4) Collaboration: Collaboration on immunization (if necessary).

2. Promotion of Child Development.

1) Observation:

Identification of the child's special needs and adaptability.

2) Therapeutic:

- a) Facilitation of children's relationships with peers.
- b) Support your child to interact with other children.
- c) Support your child to express their feelings positively.
- d) Support children in dreaming or fantasizing appropriately.
- e) Support children's participation in school, extracurricular, and community activities.
- f) Provide toys that are appropriate for the age of the child.
- g) Sing children's songs that children like.

- h) Read stories/fairy tales for children.
- i) Discuss with the youth their goals and expectations.
- j) Provide opportunities and tools for drawing, painting, and coloring.
- k) Provide toys in the form of puzzles.

3) Education:

- a) Explain the names of objects in the surrounding environment.
- b) Teach caregivers developmental milestones and established behaviors.
- c) Teach cooperativeness, not competition between children.
- d) Teach your child how to ask for help from other children, if necessary.
- e) Teach assertive techniques to children and adolescents.
- f) Demonstrate developmentally enhancing activities in caregivers.

4) Collaboration:

Refer for counseling, if necessary.

3. Child Nutrition Education.

1) Observation:

Identify readiness and ability to receive information.

2) Therapeutic:

- a) Provide health education materials and media.
- b) Schedule health education as agreed.
- c) Provide opportunities to ask questions.

3) Education:

- a) Explain the need for balanced nutrition in children.
- b) Explain the importance of feeding foods containing vitamin D and iron in prepubertal and puberty, especially iron, in menstruating girls.
- c) Encourage avoiding unhealthy snacks (for example: containing artificial sweeteners, artificial colors, preservatives, and flavorings).
- d) Teach mothers to identify foods with balanced nutrition.

- e) Teach Clean and Healthy Living Behaviors (for example: wash hands before and after eating, wash hands with soap after going to the toilet).

Implementation in Children with Less Protein Calories

The implementation of nursing is the realization of an action plan to achieve the goals that have been set. Activities in the implementation also include continuous data collection, observing patient responses during and after the implementation of actions, and assessing new data. The implementation stage is the fourth stage in the nursing process by implementing various planned nursing strategies (nursing actions).

Evaluation of Nursing Care in Children with Less Protein Calories

Nursing evaluation is an assessment by comparing changes in patient health (observed results) with the goals and outcome criteria made at the planning stage. The stage of evaluating nutritional needs refers to the goals or outcomes determined to overcome the problem of nutritional needs disorders, including the diagnosis of nutritional deficits; the results to be evaluated are the achievement of goals or outcomes that have been prepared, namely the portion of food spent increases, feelings of satiety decrease, weight improves, body mass index improves, frequency of eating improves, appetite improves. The evaluation stage is the final stage of the nursing process by assessing the extent to which the goals of the nursing plan are achieved or not. In evaluating, nurses must have the knowledge and ability to understand the response to nursing interventions, describe conclusions about the goals achieved, and relate nursing actions to outcome criteria.

The evaluation stage consists of two activities, namely process evaluation and result evaluation. Process evaluation is an evaluation carried out during the treatment process or assessing patient response, while evaluation of results is an evaluation carried out on the expected target goals.

Evaluation of the problem of nutritional needs, in general, can be assessed by the ability in:

- a) Increasing appetite is shown by the ability to eat and changes in appetite if there is less than the need.
- b) Nutritional needs are fulfilled in the absence of signs of deficiency or overweight.

- c) Maintaining nutrition through oral or parenteral is aimed at the presence of a good digestive process eating.

CONCLUSION

Kwashiorkor and marasmus are health problems in children caused by a lack of calorie and protein intake. This case is relatively high in developing countries such as Indonesia. Protein calorie deficiency is the result of a low intake of energy and protein in the daily diet, so it does not meet the recommended intake. The problem of lack of calorie protein intake has a terrible impact on children, inhibiting physical growth and also child development. The child has problems with intelligence, so it becomes a big enough problem for the child himself and for the family in the future. If the problem is handled slowly, there will likely be high productivity of children in the future. Therefore, nursing care is one of the best solutions for handling this problem so that children can catch up with the achievement of their growth and development abilities.

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REVIEW QUESTIONS

1. Mr. R took his son three years old for treatment because he had suffered from diarrhea four days ago. The child looks very weak; the body looks very thin, the skin wrinkles, and it looks restless. According to Mrs. R, her son has looked thin since age one after stopping breastfeeding. The child is also fussy and has trouble sleeping. The above symptoms are symptoms of ...
 - A. Kwashiorkor
 - B. Marasmus
 - C. Undernutrition
 - D. Diarrhea
 - E. More Nutrition
2. Mrs. H took her child, four years old, to the health center by her mother. The child seems to be constantly crying and has a distended belly, red and stray patches, diarrhea with liquid, and weak feces. The above symptoms are symptoms ...
 - A. Kwashiorkor
 - B. Marasmus
 - C. Undernutrition
 - D. DBD
 - E. Diarrhea
3. From the points below, which is the clinical picture of children suffering from Marasmus?
 - A. Blood pressure, heart rate, and reduced breathing
 - B. An old man-like face.
 - C. Accompanied by chronic diarrhea or constipation/difficulty passing
 - D. Her weight is less than 60% of the weight of a normal child her age.
 - E. All true
4. In an effort to prevent the problem of calorie protein deficit in children, nurses can take early detection steps in children. Which of the following are the most appropriate steps to prevent calorie protein deficit in children?
 - A. Monitoring the growth and development of toddlers with weighing and integrated services available at posyandu.
 - B. Monitor infants with low body weight, less energy calories, and less

protein calories, and monitor nutritional status.

- C. Monitoring family food consumption patterns Monitoring mothers from pregnancy to childbirth
 - D. Supervision of iodized salt and distribution of iodine capsules
 - E. All true
5. Deficit fulfillment of caloric protein nutrition in children causes several nursing problems. The etiology of nursing problems is caused by:
- A. Inability to absorb nutrients
 - B. Increased metabolic needs
 - C. Economic factors (for example: insufficient finances)
 - D. Psychological factors (for example, stress, unwillingness to eat).
 - E. All true



CHAPTER 9

THE CONCEPT OF NURSING CARE IN CHILDREN WITH IMPAIRED FULFILLMENT OF PATHOLOGICAL NUTRITIONAL NEEDS OF THE DIGESTIVE SYSTEM: TYPHOID FEVER

INTRODUCTION

Before studying this chapter further, you must first understand the anatomy and physiology of the body, especially in the digestive system. The digestive system is one system that directly plays a role in meeting nutritional needs; if there is a problem in this system, it will have a direct impact on disrupting the child's nutritional balance. Typhoid fever caused by *Salmonella enterica* serovar (*S. typhi*) is still a health problem in Indonesia, one of the developing countries. The death rate due to typhoid fever in typhoid fever endemic countries is 95% outpatient cases, so it is predicted that the actual number of cases will reach 15-25 times more than the number of typhoid fever cases reported. Many cases of typhoid fever occur in children because they pay less attention to food hygiene and hand hygiene, as well as high habits of consuming snacks, especially in the school environment. This chapter contains the concept of nursing care in children with disorders of meeting nutritional needs in the digestive system, namely typhoid fever. To make it easier for you to learn the material in this chapter, the presentation will start with the definition of typhoid fever, its etiology, clinical manifestations, diagnosis, management of typhoid fever, supporting examination, and typhoid fever nursing care in children. In typhoid fever, nursing care in children begins with assessment, diagnostic and laboratory examinations, nursing problems of children with typhoid fever disorder, nursing plan fulfillment of nutritional needs in children with typhoid fever, implementation in

children with typhoid fever, evaluation of nursing care in children with typhoid fever.

KEY TERMS

1. Typhoid Fever

LEARNING OBJECTIVES

After completing this learning activity, it is expected to be able to:

1. Explaining the Concept of typhoid fever
2. Explaining the Concept of nursing care in children with typhoid fever
3. Apply nursing care to children with typhoid fever

A. Nursing Care in Children with Typhoid Fever

a. Definition

Typhoid fever is an infectious disease that can be transmitted, caused by the bacteria *Salmonella enterica* serovar typhi (*S. Typhi*) and *Salmonella enterica* serovar enteritidis. These gram-negative bacteria are anaerobic in the form of bacilli with distinctive endotoxin characteristics, and Vi antigens believed to increase virulence activity. Typhoid or enteric fever is an acute infectious disease that usually affects the digestive tract, with symptoms of fever for more than one-week, digestive disorders, and impaired consciousness. Typhoid fever is caused by salmonella typhi infection. A child is suspected of typhoid fever if the child has a fever and has any of the following signs: diarrhea and constipation, vomiting, abdominal pain, headache, or cough, especially if the fever has lasted for seven days or more and another diagnosis has been ruled out (WHO, 2009).

b. Diagnosis:

Children are diagnosed with typhoid fever if bunches are found, and the following symptoms are found: (WHO, 2009):

- 1) Fever for more than seven days.
- 2) Obvious pain and severe condition with no apparent cause.
- 3) Abdominal pain, bloating, nausea and vomiting, diarrhea and constipation.
- 4) Delirium.
- 5) Hepatosplenomegaly.

- 6) In severe typhoid fever, loss of consciousness, convulsions, and icterus can be found.
- 7) It may occur with atypical signs, especially in young infants, as an acute febrile illness accompanied by shock and hypothermia.

c. Etiology:

The main cause is the bacterium *Salmonella typhi*. *Salmonella typhi* bacteria are gram-negative bacilli, move with vibrating hairs, do not spore, and have three types of antigens, namely antigen O (somatic consisting of lipopolysaccharide complex), antigen H (flagella), and antigen VI. The patient's serum contains substances (agglutinins) against the three types of antigens. Germs grow in aerobic and facultative anaerobic atmospheres at 15-41 degrees Celsius (optimum 37 degrees Celsius) and growth pH 6-8. Other precipitating factors are environment, low immune system, feces, urine, contaminated food/drink, formalities, etc. One example of a trigger factor for typhoid fever is the consumption of street food that does not meet the requirements for hygiene and health. Khairunnisa et al. (2022) mentioned that most children suffering from typhoid fever habitually consume snacks every day. Snacks in the school environment or on the roadside are open places so that flies or dust can easily contaminate snacks. Low-quality hygiene in snacks can cause digestive tract disorders, one of which is typhoid fever.

d. Clinical manifestations.

Typhoid fever in children is usually milder than in adults. The budding period is 10-20 days; the shortest is four days if the infection occurs through food, while if it occurs through drinks, the longest is 30 days. During the incubation period, may be found prodromal symptoms, feeling unwell, lethargy, pain, headache, dizziness, and not excited, then the following clinical symptoms are usually found, namely:

1) Fever.

In typical cases, a fever lasting three weeks is febrile remittent, and the temperature is not high at all. During the first week, the body temperature gradually rises daily, decreasing in the morning and increasing again in the afternoon and evening. In the third week, the temperature gradually drops and returns to normal.

2) Disorders of the gastrointestinal tract.

There is bad-smelling breath in the mouth and dry and chapped lips

(*ragaden*). The tongue is covered with dirty white membranes, and the tips and edges are reddish. In the abdomen can be found flatulence. Enlarged liver and spleen with pain and inflammation.

3) Impaired consciousness.

Generally, the patient's consciousness decreases namely apathy to somnolence. Rarely report coma or anxiety (except severe illness and late treatment). Symptoms that can also be found on the back and limbs can be found resell, namely reddish spots due to embolism resulting in the capillaries of the skin, which are found in the first week of fever, sometimes also tachycardia and epistaxis.

4) Relapse.

Relapse is the recurrence of symptoms of typhoid fever, which will still last mild and shorter. Occurrence in the second week after normal body temperature returns, the occurrence is difficult to explain. According to the theory, relapses occur due to bacilli in organs that drugs or anti-substances cannot destroy.

e. Management of Typhoid Fever.

1) Treat with chloramphenicol (500-100 mg/kg bb/day divided into four doses orally or intravenously) for 10-14 days.

2) If chloramphenicol cannot be given, amoxicillin 100mg/kg bb/day orally or ampicillin intravenously for ten days, or cotrimoxazole 48 mg/kg bb/day (divided by two doses) orally for ten days.

3) When clinically unable improvement is used third, generation cephalosporins such as ceftriaxone (80mg/kg or Iv, once daily, for 5-7 days) or oral cefixime (20mg/kg bb/day divided by two doses for ten days) (WHO, 2009).

f. Supporting Examination.

Peripheral blood tests: leukopenia, eosinophilia, relative lymphocytosis, thrombocytopenia (in severe typhoid fever). A blood culture examination is the 'gold standard' test for typhoid fever. Late diagnosis of the disease and improper treatment can be fatal as it causes gastrointestinal tract bleeding and death (Stanaway et al., 2019).

g. Typhoid fever nursing care in children (Silalahi, 2021)

1. Assessment

1) Anamnesis in children with typhoid fever

a) Self-identity.

Assessment of name, age, gender, religion, education, occupation, ethnicity/nation, hospital admission date, date of study, medical record number, medical diagnosis, and client's address.

b) Identity of the person in charge, assessment of name, age, gender, religion, education, occupation, family relationship with the client, address

c) The main complaints during hospital admission.

In children with typhoid, it is found that the patient has a fever for more than a week, apathetic to somnolent consciousness disorders, and digestive system disorders such as flatulence, tension and pain in touch, smelly mouth, constipation or diarrhea, bloody stools with or without mucus, anorexia, and vomiting.

d) Key complaints under review.

Disclose complaints most often felt by clients during assessment using the method PQRST.

(a) P (Provocateurs–Palliative), i.e., What causes symptoms, what can aggravate and reduce. In typhoid fever clients, usually, the main complaint felt is fever. Fever increases if the client does a lot of activity or mobilization and decreases when the client rests and after being given medication.

(b) Q (Quality–Quantity) is the part of the symptom felt, the extent to which the symptom is felt. Usually, the fever disappears and is sometimes accompanied by chills.

(c) R (Region–Radiation) is where the symptoms are felt, whether they are spreading. Typhoid fever is felt throughout the body.

(d) S (Scale–Severity), i.e., How much severity is perceived, on what scale. Temperatures can usually reach 39-41°C.

(e) T (Time) is when symptoms begin to arise, how often symptoms are felt, suddenly or gradually, and how long symptoms are felt. Usually, fever occurs in the afternoon towards the evening and decreases in the morning.

e) Past medical history.

Examine diseases that have something to do with current diseases. To obtain a profile of the disease which the individual experienced earlier. There is a history of febrile seizures or a history of previous hospital admissions and others.

- f) Family medical history.
To identify the presence of hereditary diseases and diseases similar to clients in the last six months, as well as diseases transmitted due to direct or indirect contact between families.
 - g) Daily activities.
Reveal the client's activity patterns before illness and after illness, including nutrition, elimination, personal hygiene, sleep, rest, and activity.
2. Physical examination in children with typhoid fever (Silalahi, 2021).
- a. General Circumstances or Appearance.
Assess the condition or appearance of patients weak, mildly ill, seriously ill, restless, or fussy. Usually, typhoid fever patients experience weakness, paleness, or reddish face due to high body temperature.
 - b. Head to Toe Examination
 - 1) Head.
Slightly dull and sticky hair, dirty scalp.
 - 2) Eye
Jaundice in the sclera occurs in severe conditions.
 - 3) Ear
Assess hygiene, secretions, and hearing examinations.
 - 4) Nose
Assess the hygiene, secretion, and respiration of the nostrils.
 - 5) Mouth
Dry and chapped lips, tongue covered with a dirty white membrane (coated tongue). This symptom is clearly visible in week II and is associated with systemic infection and endotoxin germs
 - 6) Neck
Found roselle marks (red spots) with a 2-4 mm diameter.
 - 7) Chest
When the inspection usually found signs of roselle (red spots) with a 2-4 mm diameter, the lungs have no abnormalities. However, they will experience changes if there is an acute response with symptoms of dry cough and, in severe cases, complications of pneumonia are obtained.
 - 8) Abdominal
During the inspection, it is usually found that roseola with a

diameter of 2-4 mm contains Salmonella typhi germs, and abdominal distention, which is a sign to watch out for perforation and peritonitis. On palpation, there is abdominal tenderness, hepatomegaly, and splenomegaly; identify infections that begin to occur in the second week. When auscultation is carried out, intestinal noise decreases less than five times/minute in the first week, and constipation occurs, then increases due to diarrhea.

9) Back and Buttocks

In patients with typhoid fever, roseola marks are usually found, which are red spots on the back and buttocks, which are slightly protruding with a diameter of 2-4 mm.

10) Limb

Patients with typhoid fever usually find general physical weakness and cramps in the extremities.

3 Diagnostic and laboratory examinations.

a) On examination of peripheral blood, there are features of leukopenia, relative lymphocytosis, and eosinophilia on the surface of the disease.

b) Blood cultures (culture, bile) and widal.

Bile cultures of the bacillus Salmonella can be found in the patient's blood in the first week of illness. Furthermore, it is more commonly found in urine and feces.

c) Widal examination

The required test is the titer of anti-antigen O. Titer values of 1/200 or more is a progressive increase.

d) Therapy

Bed rest, Diet, and Drugs such as Chloramphenicol, dose 50 mg/kg body weight/day divided into 3-4 oral/IV administration for 14 days. If there are contraindications, chloramphenicol is given ampicillin at a dose of 200 mg/kg body weight/day, divided into 3-4 times. Intravenous administration when unable to take medication for 21 days, or amoxicillin at a dose of 100mg/kg/day, divided into 3-4 times. Oral/IV administration for 21 days of cotrimoxazole at a dose (tmp) of 8 mg/kg body weight/day divided into 2-3 administrations. Oral, for 14 days. In severe cases, ceftriaxone can be given at a dose of 50mg/kgBB/times and given two times a day or 80mg/kgBB/day, once a day, intravenously, for 5-7 days. In cases

suspected of having MDR, the choice of antibiotics is meropenem, azithromycin, and fluoroquinolone.

2) Nursing Problems of Children with Typhoid Fever Disorder (SDKI, 2017)
Nursing diagnosis is a clinical assessment of the patient's response to health problems or life processes he experiences, both actual and potential.

1. Hyperthermia.

- 1) Definition: body temperature rises above the normal range of the body.
- 2) Etiology
 - a. Dehydration
 - b. Exposure to hot environments
 - c. Disease processes (infection, cancer)
 - d. Incompatibility of clothes with ambient temperature
 - e. Increased metabolic rate
 - f. Trauma response
 - g. Overactivity
- 3) Major symptoms and signs.
Objective: Body temperature above normal values.
- 4) Minor symptoms and signs.
Objective:
 - a. Reddish skin
 - b. Stiff
 - c. Tachycardia
 - d. Tachypnea
 - e. Skin feels warm

2. Acute pain.

- 1) Definition: Sensory or emotional experiences related to actual or functional tissue damage with sudden or slow onset and mild to severe intensity lasting less than three months.
- 2) Etiology:
 - a. Physiological injury agents (inflammation, ischemia, neoplasms)
 - b. Chemical injury agents (burns, irritant chemicals)
 - c. Physical injury agents (abscesses, amputations, cut burns, trauma, surgical procedures, excessive physical exercise).
- 3) Major Symptoms and Signs
Subjective: complaining of pain

Objective:

- a. Visibly grimacing
- b. Be protective
- c. Restless
- d. Increased pulse frequency
- e. Difficulty sleeping

Minor symptoms and signs:

Objective:

- a. Increased blood pressure
- b. Excessive breathing patterns
- c. Tense thought process
- d. Withdraw
- e. Focus on yourself
- f. Diaphoresis

3. Nutritional deficit (SDKI, 2017)

1) Definition Insufficient nutrient intake to meet metabolic needs.

2) Etiology

- a. Inability to swallow food
- b. Inability to digest food
- c. Inability to absorb nutrients
- d. Increased metabolic needs
- e. Economic factors (e.g., Financial insufficient)
- a) Psychological factors (e.g., Stress, unwillingness to eat).

3) Major symptoms and signs

Objective: Weight loss at least 10% below the ideal range

4) Minor symptoms and signs

Subjective

- a. Quickly full after eating
- b. Abdominal cramps/pain
- c. Decreased appetite

Objective:

- a. Hyperactive intestinal noise
- b. Weak chewing muscles
- c. Weak swallowing muscles
- d. Pale mucous membrane
- e. Sprue
- f. Exclaimed albumin down

- g. Excessive hair loss
- h. Diarrhea

3) Nursing Plan Fulfillment of Nutritional Needs in Children with Typhoid Fever (SIKI PPNI, 2018)

1) Hypothermia Management

Observation:

- A. Identify the causes of hyperthermia
- B. Monitor body temperature.
- C. Urine output monitors
- D. Monitor complications due to hyperthermia

Therapeutic:

- A. Provide a cool environment
- B. Loosen or remove clothing
- C. Give oral liquid
- D. Change linen daily or more often if you have hyperhidrosis (excessive sweating)
- E. Perform external cooling (ex: hypothermia blanket or cold compresses on forehead, neck, chest, abdomen, axilla)
- F. Avoid administering antipyretics or aspirin
- G. Give oxygen, if necessary

Education:

Advise bed rest.

Collaboration:

Intravenous fluid and electrolyte administration collaboration

2) Pain Management

Observation:

- a) Identify the location, characteristics, duration, frequency, quality, and intensity of pain
- b) Identify pain scales
- c) Identification of nonverbal pain responses
- d) Identify factors that aggravate and relieve pain
- e) Identify knowledge and beliefs about pain
- f) Identify cultural influences on pain response

- g) Identify the effect of pain on quality of life
- h) Monitor the success of complementary therapies already given
- i) Monitor side effects of analgetic use

Therapeutic:

- A. Provide non-pharmacological techniques to reduce pain (e.g., hypnosis, acupuncture, music therapy, biofeedback, massage therapy, aromatherapy, guided imagery techniques, warm/cold compresses, and play therapy).
- B. Environmental controls that aggravate pain (for example, room temperature, lighting, noise).
- C. Facilitate rest and sleep.
- D. Consider the type and source of pain in choosing a pain relief strategy

Education

- 1) Explain the causes, periods, and triggers of pain
- 2) Explain pain relief strategies
- 3) Recommend monitoring pain independently
- 4) Recommend using analgesics appropriately
- 5) Teach pharmacological techniques to reduce pain

Collaboration

Collaboration of analgetic administration, if necessary

3. Nutrition Management

Observation:

- a) Identify nutritional status
- b) Identification of food allergies and intolerances
- c) Identify preferred foods
- d) Identify calorie needs and nutrient types
- e) Identify the need for the use of nasogastric hoses
- f) Monitor food intake
- g) Weight monitor
- h) Monitor laboratory test results

Therapeutic:

- 1) Perform oral hygiene before eating, if necessary
- 2) Facilitation of determining dietary guidelines (e.g., food pyramid)

- 3) Serve food attractively and at the right temperature
- 4) Give high-fiber foods to prevent constipation
- 5) Give foods that are high in calories and high in protein
- 6) Give dietary supplements (if necessary)
- 1) Stop feeding through the nasogastric tube if oral intake is tolerated.

Education:

- 1) Suggest a sitting position, if able
- 2) Teach a programmed diet

Collaboration:

- 1) Collaboration medication before meals (e.g., pain relievers, antiemetics), if necessary.
- 2) Collaboration with nutritionists to determine the number of calories and types of nutrients needed.
- 3) Implementation in Children with Typhoid Fever

Management is the initiative of an action plan to achieve a specific goal. The implementation phase begins after an action plan has been prepared and indicated in the nursing orders to help the client achieve the objectives, including health improvement, disease prevention, and health recovery.

5) Evaluation of Nursing Care in Children with Typhoid Fever

It is the final stage of the nursing process, which is a systematic comparison and plan of the patient's health with predetermined goals carried out by involving the patient and fellow health workers

CONCLUSION

Typhoid fever is an acute infectious disease due to disorders of the digestive tract with symptoms of fever for more than one week, disorders of the digestive tract, and impaired consciousness. Typhoid fever is closely related to hygiene. The bacteria that cause typhoid develop very well in dirty environments. Unhygienic foods, including street food, are a medium that is very favored by this bacterium. Eating food that has been exposed to *S. typhi* bacteria or not washing hands properly while consuming food is a great chance for children to suffer from typhoid fever. Bacteria will enter the body through food, enter the circulatory system and cause disease. Health problems experienced by children with

typhoid fever include Hyperthermia, acute pain, and nutritional deficit. This problem will impact achieving children's growth and development abilities if nursing intervention is carried out slowly. Therefore, as a nurse, you must be able to manage hypothermia and pain and collaborate in providing treatment. Proper implementation of nursing care is one of the best solutions for handling health problems in children with typhoid fever.

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REVIEW QUESTIONS

1. Nurse S performs a physical examination on child S with signs and symptoms that lead to a medical diagnosis of typhoid fever. Which of the points below is not found in the patient?
 - A. Fever for more than seven days followed by obvious pain and severe condition with no apparent cause.
 - B. Abdominal pain, bloating, nausea and vomiting, diarrhea and constipation.
 - C. Delirium, Hepatosplenomegali.
 - D. In severe typhoid fever, loss of consciousness, convulsions, and icterus can be found.
 - A. Edema throughout the body, especially the face.

- 2 For children with typhoid fever, the results of diagnostic and laboratory examinations show the following:
 - A. On examination of peripheral blood, there are features of leukopenia, relative lymphocytosis, and eosinophilia on the surface of the disease.
 - B. Bile cultures of Salmonella those bacilli can be found in the patient's blood in the first week of illness. In addition, it is more often found in urine and feces.
 - C. Widal examination found titer values of 1/200 or more with a progressive increase.
 - D. Therapy in the form of bed rest, diet, and administration of drugs such as Chloramphenicol, dose 50 mg/kg body weight/day, divided into 3–4 oral/IV administration for 14 days.
 - E. All true

- 3) Children with typhoid fever experience the main problem, namely an increase in body temperature. To compile nursing interventions in dealing with the problem of increasing body temperature, it is necessary to observe first. What should the nurse do in this case:
 - A. Identify the causes of hyperthermia
 - B. Monitor the amount of food consumed and sleep duration
 - C. Monitor body temperature
 - D. Urine output monitors
 - E. Monitor complications due to hyperthermia

- 4) To deal with the problem of hypothermia in a child with typhoid fever, the nurse must make a therapy plan. Which therapy plan is not recommended to be carried out on hypothermic problems in this case?
- A. Provide a cool environment, loosen or remove clothing
 - B. Give oral liquid according to weight calculation and increased body temperature
 - C. Change linen daily or more often if the patient has hyperhidrosis (excessive sweating)
 - D. Perform external cooling (ex: hypothermia blanket or cold compresses on forehead, neck, chest, abdomen, axilla)
 - E. Berikan antipyretics or aspirin.
- 5) As a professional nurse, you must be able to implement nursing as a non-pharmacological measure to reduce or solve health problems experienced by children with typhoid fever. Which nursing implementation is most appropriate for you to do from the following items?
- A. Provide non-pharmacological techniques to reduce pain (e.g., hypnosis, acupressure, music therapy, biofeedback, massage therapy, aromatherapy, guided imagery techniques, warm/cold compresses, play therapy).
 - B. Environmental controls that aggravate pain (for example, room temperature, lighting, noise).
 - C. Facilitate rest and sleep.
 - D. Consider the type and source of pain in choosing a pain relief strategy
 - E. All right.



CHAPTER 10

THE CONCEPT OF NURSING CARE IN CHILDREN WITH IMPAIRED FULFILLMENT OF PATHOLOGICAL NUTRITIONAL NEEDS OF THE ENDOCRINE METABOLIC SYSTEM: DIABETES MELLITUS

INTRODUCTION

This chapter will be discussed nursing care in children with Diabetes Mellitus. Before studying this chapter, you must first understand the concepts of anatomy and physiology of the body, especially in the endocrine system. In addition to the concepts of anatomy and physiology, you should also understand children's growth and developmental tasks according to their age. Diabetes is the highest cause of blindness, leg amputation, and kidney failure. Lack of awareness about diabetes, accompanied by a lack of public access to health services and essential medicines, can result in diabetes mellitus not being treated properly and can cause complications. In addition, diabetes mellitus has become one of the leading causes of disease and premature death in most countries, mainly through an increased risk of heart and blood vessel disease. Two types of diabetes mellitus often occur in children: type 1 Diabetes Mellitus and type 2 Diabetes Mellitus. The number of patients with type 1 Diabetes Mellitus ranks first due to impaired function of pancreatic beta cells. In contrast, type 2 Diabetes Mellitus is influenced by family history factors with Diabetes Mellitus and Obesity. Children who experience health problems during their growth and development are significantly at risk of experiencing impaired growth and development and their ability to be productive in the future. For this reason, it is necessary to take serious care of this problem. As a health professional, nurses must be able to carry out adequate nursing care to improve the degree of health and

quality of life of children with Diabetes Mellitus; therefore, this chapter will be presented concepts about the theory and steps of nursing care in children with Diabetes Mellitus. The material in this chapter contains the definition of Diabetes Mellitus, etiologic, clinical manifestation, Pathogenesis of Diabetes Mellitus Type 1 in Children, management, exercise, counseling and Blood Sugar Monitoring, and Insulin Administration. After learning about theoretical concepts, the following material is nursing care for children with Diabetes Mellitus starting from the study, assessment to evaluation.

KEY TERMS

1. Hyperglycemia
2. Diabetes Mellitus
3. Insulin

LEARNING OBJECTIVES

After completing this learning activity, it is expected to be able to:

1. Explain the concept of hyperglycemia
2. Explaining the Concept of Diabetes Mellitus in Children
3. Administering insulin to children with Diabetes Mellitus
4. Apply nursing care to children with Diabetes Mellitus

A. Nursing Care in Children with Juvenile Diabetes

1. Definition

Diabetes mellitus (DM) is a health problem that considerably impacts children's health due to impaired use of glucose in the body. This is closely related to impaired insulin production or insulin work in the body. Insulin is a hormone that primarily functions as a regulator of glucose use in the body. Insulin is produced by the pancreas. Diabetes mellitus consists of several types, but two types of diabetes mellitus often occur in children: Diabetes mellitus type 1 (DM type 1) and Diabetes Mellitus type 2 (DM type 2). Of these two types, type 1 Diabetes Mellitus is the highest number of sufferers in children. Type 1 Diabetes Mellitus is caused by damage to pancreatic beta cells, which are cells that function to produce insulin. In adults, type 2 Diabetes Mellitus tends to occur, associated with a family history of Diabetes Mellitus and obesity. At this time, cases of type 2 Diabetes Mellitus are increasing in children and adolescents due to the increase in the number of obesity cases. Diabetes

Mellitus is also known as the silent killer because many sufferers are not aware or do not sign early symptoms but when known to have occurred. WHO shows data that in 2018 the number one cause of death in the world was non-communicable diseases, reaching 71%. In addition, WHO also mentioned that there was an increase in Diabetes Mellitus sufferers by 8.5% in the adult population, which recorded 422 million people suffering from Diabetes Mellitus in the world. Especially in countries with middle and low economic status. In Indonesia, the incidence of non-communicable diseases continues to increase. Data from the Ministry of Health of the Republic of Indonesia (2019) states that the percentage of non-communicable diseases reached 69.91%. Riskesdas, 2018 (Basic Health Research) shows that Diabetes Mellitus in Indonesia is ranked fourth, with a prevalence of 8.6% of the total population of Diabetes Mellitus cases.

Public awareness and health workers regarding diabetes in children is still low, reflected in the high number of children diagnosed with type-1 diabetes when experiencing diabetic ketoacidosis, reaching 71% in 2017. IDAI guidelines show five pillars of handling type-1 diabetes in children: insulin injection, blood sugar monitoring, nutrition, physical activity, and education. The Indonesian Association of Anak Doctors recommends using basal and fast-acting insulin at least twice daily. Independent blood sugar monitoring is carried out at least 4-6 times daily. Balanced nutrition is provided according to caloric needs; Patients and families must also be taught to adjust insulin doses according to carbohydrate consumption. Physical activity recommendations for children with type-1 diabetes include aerobic activity, strengthening muscles and bones for more than 60 minutes daily. However, patients and families should be educated about special conditions before exercising so that acute complications do not occur. The involvement of policymakers, including the government, and community support are needed so that children with Diabetes Mellitus type 1 are adequately handled (Pulungan et al., 2019).

2. Etiology

Type 1 diabetes mellitus as an autoimmune disease until now has no known exact cause. In the past, this disease was referred to as childhood-onset diabetes or juvenile diabetes because it occurs in childhood and to distinguish it from type 2 diabetes mellitus, known as adult-onset diabetes. However, the latest scientific developments show

that type 2 diabetes mellitus can also occur in children, so the term above is no longer relevant. Although the cause of the formation of auto-antibodies that damage pancreatic β cells is still unknown, research shows that there are risk factors that play a role in the formation of these auto-antibodies.

3. Precipitating factors

- a) Genetic factors
- b) Obesity
- c) Inflammatory/infectious processes
- d) Pregnancy
- e) The effect of certain drugs.

Not all children will suffer from DM despite a family history of DM sufferers because it has been found that individuals with unhealthy lifestyles have a great tendency to develop this metabolic disease. An unhealthy lifestyle includes a lack of activity or body movement, frequent laziness, excessive food consumption, smoking, and lack of exercise. Other risk factors are diabetes due to pregnancy, thyroid disorders, conditions that cause reduced production of the hormone insulin, and the effects of certain medications.

4. Clinical manifestations

Signs and symptoms of type 1 diabetes mellitus do not stand out but, if left unchecked, will get worse, including;

- (a) Extreme thirst
- (b) Increased hunger (especially after eating)
- (c) Dry mouth
- (d) Abdominal pain and vomiting
- (e) Frequent urination
- (f) Unexplained weight loss, despite eating and feeling hungry
- (g) Fatigue
- (h) Blurred vision
- (i) Heavy and difficult breathing (Kussmaul breathing)
- (j) Frequent infections of your skin, urinary tract, or vagina
- (k) Erectile disorders (rarely complained of because they feel abstinent)
- (l) Pain and itching (in Women)
- (m) The onset of ulcers and wounds that have long healed (initially

- abrasions from shoes or scratches)
- (n) Feeling happy or mood changes
 - (o) Bedwetting in a child at night
 - (p) Pain or tingling, especially in the legs at night, thus disrupting sleep.

Emergency signs of Diabetes Mellitus type 1:

- 1) Trembling and confusion
- 2) Rapid breathing
- 3) Bad breath
- 4) Stomach ache
- 5) Loss of consciousness (rarely)

5. Diagnosis

If symptoms are mentioned above and accompanied by risk factors, proceed with checking fasting blood sugar levels two hours after eating or blood sugar at random. Children are diagnosed with Diabetes Mellitus if the results of fasting blood sugar tests are >126 mg/dl and blood sugar during or two hours after eating >200 mg/dl. In addition, there is a test called HbA1c $>6.5\%$.

6. Pathogenesis of Diabetes Mellitus

a) Diabetes Mellitus Type 1

Type-1 diabetes mellitus occurs due to the destruction of pancreatic beta cells due to autoimmune processes, although in a small number of patients, there is no evidence of autoimmunity or idiopathy. Generally, clinical symptoms arise when damage to pancreatic cells reaches $\geq 90\%$. Many factors contribute to the pathogenesis of type-1 DM, including genetic, epigenetic, environmental, and immunological factors. However, the specific role of each factor in the pathogenesis of type-1 DM is still unclear. The risk for developing type-1 DM is related to gene damage, currently known more than 40 gene loci associated with the incidence of type-1 DM. Family history is rare; only 10%-15% of patients have first- and second-degree families with type-1 DM. Environmental factors associated with type-1 DM include viral infections and diet. Congenital rubella syndrome and human enterovirus infection are known to trigger type-1 DM. Consumption of cow's milk, early cereal consumption, and maternal vitamin D are thought to be associated with the incidence of type-1 DM, but further investigation is needed. In some

patients with new onset of type-1 diabetes, a small percentage of β cells have not been damaged. With insulin administration, the function of the remaining β cells improves, reducing the need for exogenous insulin. This period is called the honeymoon period, where glycemia control is reasonable. Generally, this phase begins a few weeks after starting therapy and until 3-6 months; in some patients, it can reach two years (Skyler et al., 2017). In some cases, persistent hyperinsulinemia, hypo glycemia in infancy, and hyperinsulinemia hypo glycemia can also be found. One of the studies on managing persistent hyperinsulinemia hypo glycemia of infancy by (Muslihatin et al., 2022) described a case of a 9-year-old child of the male sex who weighed 3800 grams. The baby was referred to the hospital for repeated hypo glycemia and seizures. After receiving a dextrose bolus in the hospital, laboratory test results found that the baby had hyperinsulinemia and hypo-ketonemia. The ultrasound examination results showed that the baby's brain was disturbed. The administration of glucose infusion is increased to 20 mg/kg body weight/min, and pump syringes nifedipine and octreotide. The administration of glucose infusion is lowered gradually. After evaluation, the baby's condition improved, and no more episodes of hypo glycemia or seizures were found. Babies can go home, and parents are taught to constantly monitor sequelae that can interfere with neurological development and function.

Insulin serves to enter sugar from the blood circulation into the cells. Under normal circumstances, the carbohydrates we eat will be broken down into sugar in the digestive tract. The sugar formed will be absorbed by blood vessels and then put into the cells for further use as an energy source by the cells. When we do not have enough insulin or insulin does not work correctly, sugar cannot enter the cells. Sugar levels in the blood are getting higher and higher, especially if we continue to consume carbohydrates or even sugar. Some of the sugar will be removed through the urine so that our urine becomes sweet. This is the origin of the name diabetes mellitus called diabetes. In DM, pee not only becomes sweet but also becomes very much. Because of osmosis, high urine sugar levels will attract more fluid. People with DM will urinate more often or have polyuria. In young children, DM is also often characterized by bedwetting back in children who were no longer wetting the bed. Because of frequent urination, DM sufferers will also easily feel thirsty, so they want to drink more or have polydipsia.

Sugar or glucose that cannot enter the cell causes it to 'starve' because it cannot produce the energy needed. Because cells do not get glucose for metabolism (survival), they are forced to use alternative energy sources, fats, and proteins. In patients with DM, the body will look to lose weight quickly, and the child becomes thin due to breaking down body fat. In addition, the skin that was previously supple will appear wrinkled, and the appearance of the child will look "old" due to the breakdown of fat under the skin. If the body's fat reserves have been depleted, protein breakdown in the muscles will be done. Muscles are the place of the most protein reserves in the body. The child's muscles get thinner and weaker if there is a protein breakdown. The breakdown of fat and protein in muscles results in weight loss that is often relatively drastic. When fat and protein reserves have been depleted, the "starving" cells will send a signal to the brain to ask for food, so the brain commands the patient to eat more. Signals sent by the brain cause the child to eat more and more often or polyphagia. Consumption of more carbohydrates causes an increase in blood sugar levels higher, causing children to urinate more often or polyuria. If the child urinates more and more, the child will always feel thirsty and drink more or polydipsia. Even if the child eats a lot and drinks a lot, there is no increase in weight. These are the classic symptoms of Diabetes Mellitus: polyuria, polydipsia, polyphagia, and weight loss. If this combination of classic symptoms of Diabetes Mellitus continues unnoticed, it will become a vicious cycle that can have terrible consequences. Many DM sufferers come to the hospital in shock and unconsciousness. Children with Diabetes Mellitus experience shock due to losing too much fluid from urine and unconsciousness due to blood sugar levels that are too high. With the advancement of medical technology today, there has not been found a drug or therapy that can cure this Diabetes disease, but this disease can be controlled; patients can live a healthy and productive life if they comply with the rules of diet, rest and adequate activity and undergo treatment if advised by a doctor.

b) Diabetes Mellitus Tipe2

The cause of Type 2 Diabetes Mellitus in children often occurs due to a family history of Diabetes Mellitus and due to obesity. Therefore, prevention of obesity in children is the best way to prevent type 2 DM. In type 2 diabetes, insulin cannot work correctly due to obesity, so the main management of type 2 diabetes is to reduce body fat mass. Children with

type 2 diabetes should do regular physical activity to reduce body fat mass and increase muscle and bone mass. Children and adolescents should engage in moderate and vigorous physical activity for at least 1 hour a day; the more, the better. Physical activity can be aerobic, such as running, swimming, or cycling. Nevertheless, there must also be physical activity that increases muscle and bone mass. Parents are advised to involve their children in structured sports activities, such as swimming courses or clubs, martial arts, basketball, football, dancing, and so on, to ensure that physical activity is carried out regularly. Physical activity can also be filled with activities to help the family work at home, such as mopping the floor, lifting water, etc. Physical activity is the main management of type 2 DM. The feeding arrangements for type 2 diabetes are not too different from type 1 diabetes, but because type 2 diabetes children are usually obese, we also recommend limiting fat intake.

7. Complications

Complications of DM in children are almost the same as in adults. The most feared complication of type 1 diabetes is diabetic ketoacidosis (KAD). This complication occurs when the body is severely deficient in insulin. Complaints that often arise in KAD are abdominal pain that gets heavier and heavier, nausea and vomiting, rapid breathing, and finally, shock and loss of consciousness. KAD is very risky to result in death. Like in adults, the most common long-term complications of DM in children are kidney and eye damage, such as cataracts and retinopathy (eye nerve damage). Therefore, kidney and eye function should be routinely monitored. DM cannot be cured, but children who suffer from DM can achieve growth and development well and excel like other children.

8. Medical Management

Diabetes Mellitus is one of the disorders regulating the body's metabolism, characterized by an increase in blood sugar levels that lasts for a particular time. Diabetes Mellitus can be prevented and appropriately controlled if caught early. The difficulty of diagnosis arises because the initial condition does not cause symptoms until complaints occur, which are signs of complications. Therefore, knowing the early signs of diabetes mellitus and its handling principles is necessary. The main goal of DM therapy is to try to normalize insulin activity and blood glucose levels to reduce vascular and neuropathic complications. The therapeutic goal in each type of DM is to achieve normal blood glucose levels without hypo glycemia and severe disturbances in the patient's activity patterns.

a) Diabetes Mellitus Type 1

Patients with type 1 diabetes require insulin from outside because, in type 1 DM, there is a lack of insulin production due to damage to cells in charge of producing insulin (pancreatic beta cells). Until now, there has been no treatment or action that can repair damaged pancreatic beta cells, it is not yet known what causes damage to pancreatic beta cells, and another more effective strategy to enter insulin directly into the body's cells has not been found. Type 1 DM, until now, has not been cured either through medication or other medical measures. Children with DM type 1 must have a relatively regular physical activity pattern to control this disease. People with type 1 diabetes are not advised to eat sugar. To grow and develop properly, people with type 1 diabetes must get enough calories and other nutrients. Children can still consume food sources of carbohydrates other than sugar in sufficient quantities and regularly. If the child is not obese, amok is free to eat food sources of fat and protein. People with type 1 diabetes are strongly advised to increase fiber intake from fruits and vegetables to help inhibit the absorption of sugar produced by carbohydrates. People with type 1 diabetes are strongly advised to exercise regularly because exercise can reduce insulin needs and help stabilize blood sugar levels. Insulin doses can be lowered to reduce the risk of blood sugar levels being too low during exercise. Many people with type 1 DM have become outstanding athletes, including an Olympic gold swim medalist, Gary Hall, Jr (Eniarti, 2021).

b) Diabetes Mellitus Type 2

In severe type 2 diabetes with relatively high blood sugar levels, it is necessary to take drugs or, if necessary, to be given insulin injections according to the doctor's advice.

There are five components in the management of Diabetes Mellitus, namely:

1. Diet or Terapi Gizi Medis (TGM)

Terapi Gizi Medis (TGM) is part of the overall management of DM. It requires the involvement of all team members, namely: doctors, nutritionists, and other medical workers, as well as patients and their families. TGM is given in the form of balanced nutritional foods according to each child's calorie and nutritional needs, with an emphasis on the schedule, type, and amount of food, especially in patients who use blood glucose or insulin-lowering drugs.

DM diet requirements should be able to:

- a) Improve the general health of patients
- b) Aiming at a normal weight
- c) Suppresses and delays the onset of diabetic angiopathy
- d) Provide diet modifications according to the patient's condition
- e) Attractive and easy to give

The principles of the Diabetes Mellitus diet are:

- a) Amount as needed
- b) Strict diet schedule
- c) Type: edible/not

In carrying out a daily diabetic diet should be followed by 3 J guidelines, namely:

- 1) The number of calories given must be used up, not reduced or increased
- 2) The diet schedule should correspond to its intervals
- 3) Types of sweet foods should be avoided

Determination of the number of calories in the Diabetes Mellitus Diet must be adjusted by the nutritional status of the patient; nutritional determination is carried out by calculating the Percentage of Relative

Body Weight (equal to normal body weight) with the formula:

- a) Underweight : Relative Body Weight < 90 %
- b) Normal (ideal) : Relative Body Weight 90%–110%
- c) Overweight : Relative Body Weight > 110%
- d) Obesity if : Relative Body Weight > 120%
- e) Mild obesity : Relative Body Weight 120%–130%
- f) Moderate obesity : Relative Body Weight 130%–140%
- g) Severe obesity : Relative Body Weight 140%–200%
- h) Morbid : Relative Body Weight >200 %

2. Exercise

Physical activity is divided into daily activities, and Physical exercise should be done 3-4 times a week for approximately 30 minutes every day or 150 minutes every week. Daily activities include walking, descending stairs, gardening, etc., while physical exercise is aerobic such as leisurely cycling, jogging, and swimming. Physical exercise can maintain fitness, lose weight, and improve insulin sensitivity to improve blood glucose control.

The usefulness of regular exercise every day for people with Diabetes Mellitus, namely:

- a) Increasing insulin sensitivity, if done every 1 1/2 hours after meals, also means reducing insulin resistance in patients with obesity or increasing the number of insulin receptors and increasing insulin sensitivity with its receptors.
- b) Prevents obesity when added morning and evening exercise
- c) Improve peripheral flow and increase oxygen supply
- d) Increases cholesterol levels—high-density lipoprotein
- e) Muscle and liver glucose levels become reduced, then exercise will be stimulated the formation of new glycogen.
- f) Lowers cholesterol (total) and triglycerides in the blood due to better burning of fatty acids.

Some conditions that must be considered before physical activity are:

- a) Increased ketones, blood ketone levels ≥ 1.5 mmol/L, or urine 2+ are contraindications to physical activity.
- b) History of hypoglycemia
- c) Blood sugar monitoring, children should measure blood sugar before,

during, and after physical activity

- d) Availability of carbohydrates in case of hypoglycemia.
- e) For security and communication, for example, children should use the identity of diabetes. Fluid intake must also be increased before, after, and during exercise.

3. Counseling and Blood Sugar Monitoring

Counseling is a form of health counseling to DM sufferers through various ways or media such as leaflets, posters, TV, videotapes, group discussions, and so on. Monitoring in type-1 DM patients includes self-monitoring of blood sugar, HbA1C, ketones, and continuous blood glucose. The Indonesian Pediatrician Association recommends independent blood sugar monitoring at least 4-6 times per day, namely:

- 1) Morning when you wake up
- 2) Before meals
- 3) 1.5-2 hours after meals
- 4) Evening

4. Drug intervention

Pharmacological therapy should be accompanied by the regulation of eating and physical activity. Types of drugs can be oral drugs and injections. The type of drug and dosage must be under the doctor's recommendations. Obat Hipoglikemik Oral (OHO) is Divided into several groups, namely triggers of insulin secretion (sulfonylurea dan ginseng), sensitivity enhancers to insulin (metformin dan thiazolidinedione), gluconeogenesis inhibitors (metformin), and inhibitors of carbohydrate absorption in the intestine (alpha-glucosidase inhibitors).

There are two ways to enter insulin into the body, namely through the use of insulin pumps and through injections; hence, people with type 1 diabetes must get insulin injections 2-5 times a day, depending on the body's response. Using insulin pumps is still infrequent because this tool is costly. An insulin pump is a device that can be set to automatically introduce a certain amount of insulin into the body through a needle inserted under the skin. This needle is enough to replace with a new one every few days. To determine how much insulin is needed, people with type 1 diabetes must also check their blood sugar levels several times a day, at least 3 times a day, before meals (Ikhsan, 2021).

Subcutaneous insulin injections

Regular insulin reaches its peak action at 1-4 hours after subcutaneous injection, the speed of absorption at the injection site depends on several factors, including Pancreatic graft: The latest approach to grafting is segmental from living donors of identical twins. Daily basal insulin needs range from 30% (if using regular insulin) to 50% (if using fast-acting insulin) of the total insulin requirement. In patients with regular insulin, the ratio of basal insulin is smaller because regular insulin also exerts a basal effect. The remaining insulin dose is adjusted to preprandial doses with fast-acting or regular insulin. Determination of fast-acting insulin dose can use the ratio of insulin to carbohydrate calculated using the formula 500, which is 500 divided by the total daily insulin dose. The result is how many grams of carbohydrates can be covered by 1 unit of insulin. Further insulin dose adjustments are determined based on daily patterns of blood sugar levels. In fast-acting insulin, checking blood sugar within 1-2 hours after eating is recommended to determine insulin efficacy. Elevated blood sugar before breakfast requires dose adjustment of medium-acting insulin before dinner, bedtime, or long-acting insulin.

In addition to basal and preprandial insulin, there is a corrective dose of insulin given when there is an increase in blood glucose levels. Calculation of corrective dose using insulin sensitivity factor that determines the amount of blood glucose that can be lowered by 1 unit of insulin. The correction dose is calculated using the formula 1800 for fast-acting insulin, which is 1800 divided by the total daily insulin dose. The corrective dose for short-acting insulin is calculated using the formula 1500, which is 1500 divided by the total daily insulin dose. From these calculations, it will be obtained how much blood glucose can be lowered by giving 1 IU of insulin (Pulungan et al., 2019).

Autoantibody examination in children with Diabetes Mellitus has not become routine because examinations are not yet widespread and relatively expensive in Indonesia. Serological markers for autoimmunity against pancreatic β cells include (1) glutamic acid decarboxylase 65 autoantibodies (GAD), (2) Tyrosine phosphatase-like insulinoma antigen 2 (IA2), (3) insulin autoantibodies (IAA), and (4) β -cell-specific zinc transporter 8 autoantibodies (ZnT8). A positive result on one of these serological markers confirms the diagnosis of type-1 Diabetes Mellitus. The five pillars of management of type-1 Diabetes Mellitus in children are

insulin injection, blood sugar monitoring, nutrition, physical activity, and education. In dealing with type-1 Diabetes Mellitus, a holistic approach is needed from an integrated team of health workers consisting of pediatricians, endocrinologists, nutritionists, psychiatrists or psychologists, and Diabetes Mellitus educators (Pulungan et al., 2019).

5. Evaluation/Monitoring

Regular weight monitoring, blood sugar checks, fat profiles, and blood pressure are essential to avoid the risk of complications. Type 2 DM generally occurs in lifestyle patterns that have been formed, so in addition to self-management of DM children, active participation of patients, families, and communities is also needed. Children need to get support from family and community, such as facilitating children nutrition consultations and reminding children of regular meal schedules, types, and amounts of main meals or distractions as recommended.

Nursing care in children with juvenile diabetes mellitus

1. Assessment

The main focus of the assessment on Diabetes Mellitus clients is to conduct a rigorous assessment of the level of knowledge and ability to perform self-care. The detailed assessment is as follows:

a. Primary Assessment

The assessment is carried out quickly and systemically, namely:

- 1) Airway + cervical control
 - a) Airway: tongue falls back (hypoglycemic coma), foreign body/blood in the oral cavity.
 - b) Cervical Control: -
- 5) Breathing + Oxygenation
 - a) Breathing : Chest exposure, Respiratory evaluation
 - b) Oxygenation: Cannula, tube, mask
- 6) Circulation + Hemorrhage control
 - a) Circulation:
Signs and symptoms of shock
Resuscitation: crystalloid, colloid, venous access.
 - b) Hemorrhage control: -
- 7) Disability: neurological examination GCS
 - A: Alert : fully aware, good response

V: Voice response: decreased consciousness, response to sound of the

P: Pain Respons: decreased consciousness, no response to sound, response to pain stimuli

U: Unresponsive: decreased consciousness, no response to sound, no response to pain

b. Secondary Assessment

The secondary examination is carried out after providing assistance or assistance to the primary examination.

Secondary examinations include:

- 1) AMPLE: allergy, medication, past illness, last meal, event
 - a) Full body examination: Head to toe
 - b) Supporting examination: more details, re-evaluation

Diagnostic Examination

1. Glucose Tolerance Test (TTG) elongated (greater than 200mg/dl). Usually, this test is recommended for patients who show elevated glucose levels under stressful conditions.
2. Fasting blood sugar is normal or above normal.
3. Hemoglobin glycolysis is above the normal range.
4. Urinalysis is positive for glucose and ketones.
5. Cholesterol and serum triglyceride levels may increase, indicating inadequacy of glycemic control and increased propensity in the occurrence of atherosclerosis.

2. Nursing Problems in Children with Juvenile Diabetes Mellitus Disorder

According to (SDKI, 2017), Nursing diagnoses that arise include:

1. Acute pain
 - 1) Definition: sensory or emotional experiences related to actual or functional tissue damage with sudden or slow onset and mild to severe intensity lasting less than 3 months.
 - 2) Etiology:
 - a) Physiological injury agents (inflammation, ischemia, neoplasms)
 - b) Chemical injury agents (burns, irritant chemicals)
 - c) Physical injury agents (abscesses, amputations, cut burns,

trauma, surgical procedures, excessive physical exercise).

3) Major Symptoms and Signs

Subjective: complaining of pain

Objective:

- 1) Visibly grimacing
- 2) Be protective
- 3) Restless
- 4) Increased pulse frequency
- 5) Difficulty sleeping

4) Minor Symptoms and Signs

Objective:

- 1) Increased blood pressure
- 2) Excessive breathing patterns
- 3) Tense thought process
- 4) Withdraw
- 5) Focus on yourself
- 6) Diaphoresis

Impaired Physical Mobility

1) Definition: Limitation in physical movement of one or more extremities independently.

2) Etiology

- a) Deterioration of the integrity of bone structure
- b) Changes in metabolism
- c) Physical unfitness
- d) Decreased muscle control
- e) Decrease in muscle mass
- f) Decreased muscle strength
- g) Developmental delays
- h) Joint stiffness
- i) Contracture
- j) Malnutrition
- k) Musculoskeletal disorders
- l) Neuromuscular disorders
- m) Body mass index overcome 75th percentile according to age

- n) Effects of pharmacological agents
- o) Motion restriction program
- p) Pain
- q) Less exposure to information about movement activities
- r) Anxiety
- s) Cognitive impairment
- t) Unwillingness to make movements
- 1) Sensory perception disorders

3) Minor Symptoms and Signs

Subjective: Complains of decreased activity ability

4) Major Symptoms and Signs

Subjective:

- a) Complaining of sleeplessness
- b) Complaining of frequent wakefulness
- c) Complaining of not being satisfied sleeping
- d) Complaining of altered sleep patterns
- e) Complain of insufficient rest

Nutritional deficit (SDKI, 2017)

1) Definition

Insufficient nutrient intake to meet metabolic needs.

2) Etiology

- a) Inability to swallow food
- b) Inability to digest food
- c) Inability to absorb nutrients
- d) Increased metabolic needs
- e) Economic factors (e.g., Insufficient finances)
- f) Psychological factors (e.g., Stress, reluctance to eat).

3) Major symptoms and signs

- a) Subjective (not available)
- b) Objective: Weight loss at least 10% below the ideal range

4) Minor symptoms and signs

- a) Subjective
- 1) Quickly full after eating

- 2) Abdominal cramps/pain
- 3) Decreased appetite

b) Objective

- 1) Hyperactive intestinal noise
- 2) Weak chewing muscles
- 3) Weak swallowing muscles
- 4) Pale mucous membrane
- 5) Sprue
- 6) Exclaimed albumin down
- 7) Excessive hair loss
- 8) Diarrhea

3. Nursing Plan in Children with Juvenile Diabetes Mellitus (SIKI PPNI, 2018)

a) Pain Management

Observation:

- 1) Identify the location, characteristics, duration, frequency, quality, and intensity of pain
- 2) Identify pain scales
- 3) Identification of nonverbal pain responses
- 4) Identify factors that aggravate and relieve pain
- 5) Identify knowledge and beliefs about pain
- 6) Identify cultural influences on pain response
- 7) Identify the effect of pain on quality of life
- 8) Monitor the success of complementary therapies already given
- 9) Monitor side effects of analgetic use

Therapeutic:

- 1) Provide nonpharmacological techniques to reduce pain (e.g., hypnosis, acupuncture, music therapy, biofeedback, massage therapy, aromatherapy, guided imagery techniques, warm/cold compresses, play therapy)
- 2) Environmental controls that aggravate pain (ex: room temperature, lighting, noise)
- 3) Facilitation of rest and sleep
- 4) Consider the type and source of pain in choosing a pain relief strategy.

Education

- a) Explain the causes, periods, and triggers of pain
- b) Explain pain relief strategies
- c) Recommend monitoring pain independently
- d) Recommend using analgesics appropriately during
- e) Teach pharmacological techniques to reduce pain

Collaboration

Collaboration of analgetic administration, if necessary

Mobilization Support

Observation:

- 1) Identify any pain or other physical complaints
- 2) Identify the physical tolerance of movement
- 3) Monitor heart frequency and blood pressure before starting mobilization
- 4) Monitor the general condition during mobilization

Therapeutic:

- 1) Facilitate mobilization activities with assistive devices (e.g., bed fencing)
- 2) Facilitate movement, if necessary
- 3) Involve family to assist patients in improving movement

Education:

- 1) Describe mobilization objectives and procedures
- 2) Encourage early mobilization
- 3) Teach simple mobilizations to do (e.g., sitting in bed, sitting on the side of the bed, moving from bed to chair) (SIKI PPNI, 2018)

Nutrition Management

Observation:

- 1) Identify nutritional status
- 2) Identification of food allergies and intolerances
- 3) Identify preferred foods
- 4) Identify calorie needs and nutrient types
- 5) Identify the need for the use of nasogastric hoses
- 6) Monitor food intake

- 7) Weight monitor
- 8) Monitor laboratory test results

Therapeutic:

- 1) Perform oral hygiene before eating, if necessary
- 2) Facilitation of determining dietary guidelines (e.g., food pyramid)
- 3) Serve food attractively and at the right temperature
- 4) Give high-fiber foods to prevent constipation
- 5) Give foods that are high in calories and high in protein
- 6) Give dietary supplements (if necessary)
- 7) Stop feeding through the nasogastric tube if oral intake is tolerated.

Education:

- 1) Suggest a sitting position, if able
- 2) Teach a programmed diet

Collaboration:

- 1) Collaboration medication before meals (e.g., pain relievers, antiemetics), if necessary.
- 2) Collaboration with nutritionists to determine the number of calories and types of nutrients needed.

4. Implementation in Children with Juvenile DM

Implementation is carrying out nursing actions identified in component P or Planning, accompanied by writing down the date and time of implementation.

5. Evaluation of Nursing Care in Children with Juvenile DM

Evaluation is an ongoing process to assess the effects of nursing actions on patients. Evaluation is carried out on the patient's response continuously to the nursing actions that have been carried out. Process or promotive evaluation is carried out every time the action is completed. Evaluation can be done using Subjective, Objective, Analysis, and Planning (SOAP) assessment as a thought pattern.

CONCLUSION

Diabetes mellitus in children is a metabolic disease that can cause various complications that significantly affect the quality of life of children, so it needs serious attention from all parties. Until now, no way or treatment has been found to cure DM disease thoroughly. However, it must be remembered that diabetes can be prevented with a healthy lifestyle and controlled through diet regulation, physical exercise/exercise, and medication. In every treatment of people with DM, a target must always be set to be achieved before starting treatment with the aim of knowing the treatment program's success and adjusting the therapy regimen as needed. DM treatment is particular and individualized for each patient. Lifestyle modifications are significant, not only to control blood glucose levels but, when applied in general, it is expected to reduce the prevalence of DM in Indonesia.

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REVIEW QUESTIONS

1. Which of the following is not a series of hyperglycemia in children with DM?
 - A. Carbohydrates are broken down in the digestive tract, absorbed by blood vessels, and entered into cells by insulin.
 - B. Impaired insulin (function or amount)
 - C. Glucose cannot enter the blood circulation
 - D. Hyperinsulinemia
 - E. All of the above stages are correct
2. Mrs. R took her son to the hospital. After an examination, it was found that the child suffered from type 2 Diabetes Mellitus. Which of the points below is most likely not found in the child?
 - A. Obese Children
 - B. Drastic weight loss
 - C. Family history of the disease
 - D. Often hungry and eat more
 - E. Frequent urination and drink more
3. In children with DM, there are 5 components in the management of Diabetes Mellitus. Which of the following is not part of the 5 components?
 - A. Education about DM and Diet management
 - B. Engage in regular physical activity and exercise
 - C. Addition of sleep rest to save energy use
 - D. Regular treatment
 - E. Evaluation and monitoring
4. One of the nursing diagnoses in children with DM is acute pain. Below are objective main symptoms and signs that we can see according to the diagnosis above.
 - A. Visibly grimacing
 - B. Be protective
 - C. Restless and difficulty sleeping
 - D. Increased pulse frequency
 - E. All true

5. To be able to deal with acute pain problems, pain management is carried out. According to the diagnosis in question number 4 above, what action is most appropriate for a nurse?
- A. Identify the location, characteristics, duration, frequency, quality, and intensity of pain and pain scales
 - B. Identify factors that aggravate and relieve pain
 - C. Identify the effect of pain on quality of life
 - D. Monitor the success of complementary therapies already given
 - E. All true



CHAPTER 11

INTEGRATED MANAGEMENT OF CHILDHOOD ILLNESS

INTRODUCTION

The morbidity and mortality rate of toddlers is an essential indicator of the degree of public health. One of the efforts to reduce the mortality rate of toddlers is by improving health workers' skills in Public Health Center through the Integrated Management Of Childhood Illness (IMCI) approach. The IMCI method has been developed in Indonesia since 1997. Even though it has been 20 years, the implementation in the field still needs to be improved. The implementation of child health services in accordance with IMCI standards is in line with Law no. 36 of 2009 concerning Health and Permenkes no. 25 of 2014 concerning Child Health Efforts and District/City Minimum Service Standards. Implementing IMCI is hoped that there will be an increase in case discovery so that more sick toddlers can be prevented from dying. Implementing IMCI in Public Health Center can strengthen the health service system so that handling sick toddlers is more effective, improves the quality of services, increases the role of families and communities, and protects nurses and midwives if they encounter problems after providing services. Sick toddler services with the IMCI approach are considered cost-effective. If implemented correctly and widely, they can greatly reduce the mortality rate of neonates, infants, and children under five. Thus, nurses, as a profession that has the authority to serve sick toddlers, must be competent to perform IMCI correctly according to standards and apply the IMCI approach widely to all sick toddlers and young infants who come to the health center.

KEY TERMS

1. Integrated Management Of Childhood Illness
2. Young Baby

LEARNING OBJECTIVES

After completing this learning activity, it is expected to be able to:

1. Understanding the concept of IMCI in infants aged two months to 5 years
2. Understanding the concept of IMCI in Young Infants
3. Understand how to use the IMCI book instructions
4. Able to conduct studies and determine classifications according to the instructions in the book IMCI
5. Able to perform actions according to the instructions in the IMCI book
6. Able to determine the patients who need to be referred according to the instructions in the book IMCI

a. Integrated Management of Childhood Illness

The book Integrated management of childhood illness has two parts: sick toddlers aged 2 months to 5 years and young infants aged less than 2 months (Ministry of Health RI, 2019). To be able to understand this material, you must first have a book of Integrated management of childhood illness which can be accessed at [click here](#).

1. Sick Toddlers Aged 2 Months to 5 Years

Start the lesson by paying attention to the table of contents in the book IMCI. Use the table of contents to make it easier to find a sheet that suits the patient's condition, for example, a 3-month-old child, meaning we see instructions in the table of contents on the page "sick toddlers aged two months to 5 years" on pages 1 to page 34 or if the patient is a young baby, then pages 35 to 67 are used.

- a) After determining the age group of the child, proceed to page 1. This page has instructions for nurses to ask mothers about their child's health problems. Before entering the next page, ask if this is the first or repeat visit. If the visit is first, use pages 2 through 27; if the visit is revisited, use pages 28 through 34.
- b) Conduct a general red flag assessment on page 1. There are seven common danger signs: as many as two general danger signs that must be studied by asking and five general danger signs that must

- be studied by looking and hearing.
- c) The results of the assessment match the “symptoms” column. If the questions in the symptom column are all answered with “no,” then the child has no general red flags and does not need to be referred, but if there are one or more “yes” answers in the symptom column, then the child has a general danger sign and needs to be referred immediately. Before making a referral, complete the assessment quickly, determine the child’s problem classification, and act according to the established classification.
 - d) Next, establish what is the health problem in the child.
 - e) If the child has a cough and/or difficulty breathing, use the IMCI book on page 2. Follow the flow according to the instructions, read all commands and instructions carefully, and work quickly. The results of the assessment through the instructions “ask” and “see, listen and check” can be determined symptoms then determine the classification, then take action/treatment according to the classification. If the child is classified as red, the child is seriously ill and needs to be referred to an adequate facility. If the child is in the yellow classification, it means that the child has a health problem that must be treated immediately without making a referral. If the child is in the green classification, it means that the child suffers from a mild illness and needs proper action/treatment without needing to be referred.
 - (1) If the child has diarrhea, use the IMCI book on page 3. Assess according to the instructions and follow the flow in the direction of the arrow. The classification of diarrhea is divided into diarrhea with dehydration classification, diarrhea with diarrhea classification of more than 14 days, and diarrhea with blood or dysentery. Take action/treatment according to the classification.
 - (2) If the child has a fever, use the instructions on page 4 of the IMCI book. Follow the information in points (1) and (2). In children with fever, an assessment is carried out to determine whether malaria fever or fever is not malaria. Follow the “ask” and “view and check” instructions to establish the classification. It can be seen on pages 64 to 68 to determine malaria-endemic areas. On this page, you can see districts/cities with high endemicity and low endemicity. If

pages 64 to 68 do not contain the name of the district/city where the child lives or the district/city visited by the child in the last 1 to 2 weeks, the child is free from malaria classification. On page 4, there are also guidelines for assessing measles and its classification.

- (3) Page 5 contains instructions for the study, classification, and action/treatment for dengue hemorrhagic fever
- (4) If the child has ear problems, use page 6 of the IMCI book.
- (5) To determine a child's nutritional status, use page 7 of the IMCI book
- (6) To check for anemia in a child, use page 8 of the IMCI book
- (7) To check HIV status, use page 9 of the IMCI book
- (8) To check immunization status and vitamin A administration, use page 10
- (9) To determine antibiotic treatment, use page 10. Choose the first antibiotic if available, but if it is not, the second antibiotic can be chosen. The calculation of the dose of the drug uses body weight, but if the weight is unknown, the dose of the drug can be calculated based on age.
- (10) Page 12 contains instructions for teaching mothers how to administer oral medication at home
- (11) Thus, the following study, according to the instructions above

2. Young infants less than two months old

Studies in young infants are on pages 35 to 67. The assessment was carried out according to the above explanation in toddlers aged two months to 5 years.

SUMMARY

The book of Integrated management of childhood illness is straightforward and effective. Through the guidance of simple questions can be assessed and classified actions to minimize the possibility of problems getting worse. This IMCI can also be readily known for severe cases requiring immediate treatment, so the referral process can be carried out earlier.

REFERENCE

Kemenkes RI. (2019). *Buku Bagan Manajemen Terpadu Balita Sakit*.
<https://eprints.triatmamulya.ac.id/586/1/25.%20Buku%20Bagan%20Manajemen%20Terpadu%20Balita%20Sakit%20%28MTBS%29%202019.pdf>

REVIEW QUESTIONS

Choose the most appropriate answer

1. Which of the following statements is true about IMCI?
 - A. Arranged in easy-to-understand charts and flows
 - B. Compiled based on the diseases suffered by children
 - C. Grouped by child gender
 - D. Bagan is made a little more complicated to be more thorough
 - E. The charts are made colorful so that they are beautiful and interesting to learn
2. The statement about IMCI below is true, namely:
 - A. Nurses actively and structurally conduct assessments.
 - B. The assessment is carried out by “ask, see, check, and feel.”
 - C. After the data is obtained, classification and action/treatment can be carried out.
 - D. There is guidance on counseling and follow-up services at repeat visits.
 - E. There are instructions for calculating drug doses and selecting appropriate antibiotics.
3. The flow handling in the IMCI chart book is:
 - A. Conduct an assessment
 - B. Establish symptoms
 - C. Determining the classification
 - D. Determine action/treatment
 - E. All true
4. In children with fever, finding out whether children are at risk of having fever due to malaria can be determined through the data below, namely ...
 - A. Fever and runny nose for a week

- B. Fever and severe dehydration
 - C. There is a history of being in malaria-endemic areas in the last 1 to 2 weeks
 - D. RDT assessment results are negative but have been in malaria-endemic areas for the last 1 week
 - E. RDT is positive, and there is a history of travel in the last 1 to 2 weeks to malaria-endemic areas
5. Below the data that supports that children have suffered from Dengue Hemorrhagic Fever are:
- A. Positive tourniquet test
 - B. Cold finger and toe extremity
 - C. Tourniquet negative and cold extremity tests
 - D. Positive tourniquet test and cold extremities
 - E. Blood pressure, pulse, and irregular breathing of children

ACKNOWLEDGMENT

This nursing teaching material was prepared in accordance with the Indonesian National Qualifications Framework (KKNI) and the 2022 Curriculum of the Association of Indonesian Nursing Vocational Education Institutions (AIPVIKI) for the Higher Education Applied Undergraduate Study Program, Health Polytechnic, Ministry of Health.

A big thank you to the Ministry of Health, Secretary of the PPSDM Health Agency, WHO-Indonesia, Director General of Health Personnel, Director of Poltekkes Kemenkes Medan, Reviewer from Universitas Islam Indonesia Yogyakarta, Reviewer from Universitas Negeri Yogyakarta, Reviewer from Gadjah Mada University, Facilitator Team from Poltekkes Kemenkes Yogyakarta and ladies and gentlemen who have played a significant role so that this teaching material can be completed properly.

The development and publishing of this book have been supported by WHO Indonesia and Directorate General of Health Workforce, Ministry of Health Indonesia



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Pediatric Nursing

Kategori : Pediatric and Nursing

ISBN 978-623-02-7089-5



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