Ministry of Education and Science of Ukraine
Ministry of Health Care of Ukraine
Sumy State University

5251 Methodological instructions

practical lessons on the topic

"Features of childcare at different ages: periods of development, assessment of the deneral condition and elements of neuropsyological development of the child"

on the discipline **"European experience of care for children of young age"**

(in accordance with the conditions of the Bologna process)
for students of specialty 222 *"Medicine"*
of the full-time course of study

Sumy
Sumy State University
2022

Methodological instructions practical lessons on the topic “Features of childcare at different ages: periods of development, assessment of the deneral condition and elements of neuropsyological development of the child” on the discipline “European experience of care for children of young age” (in accordance with the conditions of the Bologna process) / compilers : O. I. Smiian, V. A. Horbas. – Sumy : Sumy State University, 2022. – 96 p.

Department of Pediatrics

Features of childcare at different ages: periods of their development, assessment of the overall condition and elements of the neuropsychic development of the child

Actuality of the topic

The characteristic features of children's body are its continuos growth, development, improvement in the structure and functioning of organs and systems. Therefore, each period of children life has its own specific features of development. Knowing these features allows us to evaluate the balance of child's development, diagnose beforehand and treat properly different kinds of childhood pathologies, to perform specific preventive and rehabilitative actions of care for children of different ages.

The general goal is to be able to asseses the general state of the child, based on knowledge about the features of child body at different age periods, and with the help of anamnesis collection techniques, clinical examination and childcare techiques at different age, be able to analyze the neuropsychological development of children in different age periods and apply children care techniques.

Set specific goals:

1. Features of children's age periods.
2. Characteristics of the main types of child's body development.
3. Features of collecting complaints, life and medical history.
4. Sequence of collecting the life history of the child.
5. Features of collecting genetic history.
6. Methods of objective examination of children.
7. Criteria for analyzing the overall condition of children.

8. Levels of severity of the child's condition.
9. Elements of the children's neuropsychiological development.
10. Principles of daily care for newborns and children of different ages. Child hygiene. Observation of children of different ages in outpatient conditions.

After learning the topic students should know how to:

- Collect complaints, life and medical history.
- Detect the features of child's body in every age period.
- Identify the genealogy, detect the lethal cases and their cases, family diseases, possibility of parental blood relationship, graphically depict the genealogical tree.
- Carry out an objective examination of the child.
- Analyze the child's general condition of, based on complaints, anamnesis, and clinical examination.
- Analyze the neuropsychiological development of the child.
- Be able to take care of the child at different age periods.
- Be able to carry out hygienic procedures for children of different ages.

Entry - level goals:

- Collect medical history from the children of different ages;
- Carry out an objective examination of the child, taking into account the age;
- Interpret the obtained research data by analyzing the overall condition of the child;
- Analyze the neuropsychiological development of a child;
- Provide proper care for the child at different age periods.

Complete the following tasks and check the correctness by comparing them with the standard answers to find out if you have necessary level of knowledge and skills.

Theoretical questions to the subject:

1. Features of the child's age periods:
   a) prenatal (phase of embryonic development, phase of placental development);
   b) newborn;
   c) infant;
   d) period of deciduous teeth (toddler and preschool);
   e) junior school (prepubertal);
   f) senior school (pubertal).
2. Characteristics of the main types of child's body development.
3. Learn about the peculiarities of collecting complaints, life and medical history:
   a) from parents;
   b) from relatives;
   c) from a child;
   d) from medical staff or a caregiver;
   e) studying medical records.
4. Learn the sequence of collecting the life history of the child:
   a) obstetric history;
   b) prenatal, intranatal and neonatal anamnesis;
   c)physical and psychomotor child's development in infancy and subsequent periods of childhood;
   d) preventive vaccinations;
   e) dietary history;
   f) history of allergies;

g) epidemiological anamnesis;

h) social anamnesis.

5. Features of collecting genetic history:

a) identify the genealogy;

b) cases of spontaneous abortion, miscarriage, stillbirth;

c) cases of death in family and their causes;

d) family diseases;

e) genealogical tree graphic.

6. Learn methods of objective examination of children:

a) examination;

b) palpation;

c) percussion;

d) auscultation.

7. Criteria for analyzing the overall condition of children:

a) physical development;

b) neuropsychic development;

c) risk factors in genealogical, biological and social anamnesis;

d) health condition in young age;

e) body resistance;

f) functional state;

g) presence of chronic diseases.

8. Notions: diagnosis, symptom, syndrom.

9. Severity levels of child's condition.

10. Features of child care, hygienic procedures.

Brief methodological guidelines for work in a practical lesson.

The class will begin with a quig to chech the initial level of knowledge, folloucol by a brief viewing of training video, an analysis of the material learned and independent work by the student; on basic methods of child. Under the guidance of the

teacher will be consideral the main methods of care for healthy and sick child of different age periods, and an objective clinical examination of children of different ages will be conducted. At the end of the lesson – a summary of the material studied and the solutional situational tasks on the topic.

Content of the topic "Peculiarities of care for children of different ages: periods of their development, analysis of the overall condition and elements of the neuropsychiological development of the child"

Child is not a mini copy of an adult: its body has its own anatomo-physiological features, which are constantly changing during the whole period of childhood. We cannot talk about "norms" for children in general without age differentiation.

During individual development, child's body goes through certain formation stages of particular organs and systems of the body. At the same time, there is a gradual improvement in the adaptive responses of the developing body. Despite the fact that individual development is a perpetual process, each child goes through certain developmental stages common to all. Particular stages of child development are characterized by different growth rate, the level of maturity and the peculiarities of functioning of organs and systems, and the specifics of the interaction of the chield's body with the environment.

The intensity of growth and development depends on the child's age. The maximum growth rate is determined during the antenatal period and early child age, then the growth rate slows down, but these processes occur unevenly. Each age period has its certain growth rate due to morphofunctional features. The heterogenic nature of ontogenesis and the

individual rate of maturation of particular physiological systems create preconditions for the necessity of a specific characterization of particular stages of child development, the determination of the verge of transition from one stage to another and the necessity to divide the process of individual development into periods.

The development of the human body proceeds continuously throughout life, form conception to death, but the nature and forms of this process are different at different age periods.

Anatomical and functional backwardness of organs and tissues, and above all the nervous system makes the child less resistant to some external factors, but this backwardness is not equal to physiological weakness and it is not always a negative phenomenon. With properly organized care and rational nutrition, the child easily adapts to the environment and develops well. Child's body begins to suffer when demands are placed on it that overwhelm its capabilities, without a period of gradual adaptation. Therefore it is necessary to create conditions for child's development, which meet the needs of the body at a certain age period.

In practical paediatrics, it is important to develop differentiated approach to children according to the stage of individual development. Since each age period has certain features, based on them must be solved the issues of care for children of different ages, nutrition of children at different stages of their development, education, specific and nonspecific preventive measures for the most common diseases.

In the process of human ontogenesis, there are two main periods which are based on a set of age anatomo-physiological features:

1 Prenatal period is characterized by the organogenesis of different body systems, which manifests in significant changes in the shape and structure of organs during intensive and differentiated growth.

2 Postnatal period, or so-called childhood, during which the growth, formation and development of the child's body continues. Weight and surface area of the body increase due to the development of tissues, organs and particular parts of the body. At the same time, development of functions of organs and system occurs.

Each period has its own specific features. The most reasonable classification of periods of childhood is the one that was offered by Prof. N.P. Gundobin (1860-1908).

Currently, our country uses a slightly modified scheme of periodization of childhood, proposed by Prof. N.P. Gundobin, who in 1906 published his major work "Features of the child's body" which summarizes numerous data on anatomical, histological and physiological features of the child's body that helps to understand the peculiarities of diseases in childhood. The scheme of periodization of children's age is stated in this work. It is based on the division of the whole childhood into separate periods, which differ in some anatomo-physiological features, responsiveness, predominant activity of the endocrine glands depending on age, certain diseases and features of childcare in different periods of childhood (Appendix A).

According to the scheme of childhood periodization, there are two major periods of life:

1 Prenatal stage (duration 270–280 days) (Appendix D):

- phase of embryonic development (up to 2 months);

• phase of placental development (from the 3rd month to birth).

2 Extrauterine stage (from the birth to 17–18 years of age):

a) neonatal period (from 0 to 3-4 weeks)

- early (form the time the umbilical is cutcord cutting to the 7th or 8th day of life)

- late (from the 7th or 8th day of life to the 28th or 29th day, or the 1st month);

b) period of infancy (from 1 month to 1 year);

c) period of deciduous teeth (from 1 to 7 years):

- toddler age (from 1 to 3 years),
- preschool period (from 4 to 6–7 years);

d) period of childhood or midchildhood (from 6–7 to 12 years);

e) period of adulthood — puberty or senior school age (from 13 to 15–16,17–18 years).

As noted about, each of these periods has very specific characteristics and distinctive features.

The prenatal stage of individual development is the period from impregnation to birth. Its average duration is 270 days, starting from the first day of the woman's last menstrual cycle. The outer parts of the body and internal organs are formed during the phase of embryonic development, which lasts from the formation of the zygote to the 2nd month. During the phase of placental development, which lasts from the 3rd month to the birth of the child, the tissue differentiation of fetal organs occurs.

The prenatal stage of individual development is characterized by exceptionally rapid growth and intensive increase of fetal weight. The child's height over 270-280 days increases by 50 cm or more, and the weight over the same

period increases by an average of 3.5–4 kg. It is estimated that during pregnancy the length of the fetus increases by about 5000 times and weight – 6–10 times. Calculations show that if the body weight continued to increase with such intensity after birth, the body weight of an adult would be several times the mass of the Earth. In addition, period the nutrition of the fetus during this is due to the receipt of essential substances from the mother's body. Among the glands of internal secretion the most functionally active is the thyroid gland (Appendix B).

These features are of great practical importance. First of all, they set important tasks for antenatal protection of the fetus. Since the child's nutrition is carried out at the expense of the mother's body, various harmful effects on the mother's body can lead to the development of fetal malformations, hypo- or dysplasia of organs and tissues. In addition, the developing fetus is very sensitive to teratogenic factors. Embryopathies are caused by teratogenic factors (exogenous – factors of harmful production, smoking, alcohol, etc.; endogenous – mutant genes, chromosomal aberrations, and mixed factors) during the phase of embryonic development, when the anlage and organogenesis of almost all internal organs takes place. They are the most severe anatomical and dysplastic malformations. Moreover, the sensitivity of different organs and systems to teratogenic factors is different in certain periods of embryogenesis. Fetal age or gestational age from 3 to 7 weeks, namely the embryonic phase, is considered a critical period of development. During this period, there may occur severe and fatal developmental disabilities (abortion, stillbirth, etc.). The influence of adverse factors in the phase of placental development usually does not lead to the formation of structural malformations, but may be manifested by growth and differentiation of organ impairment (hypoplasia) or impaired

tissue differentiation (dysplasia). In case of infectious diseases of the mother, such as influenza, rubella, cytomegalovirus, viral hepatitis, etc., during this phase, malformations do not occur, but cirrhosis and fibrosis appear, since the immune system is just beginning to form and proliferative connective tissue reactions occur in response to infection (Appendix C).

The changes in the fetus that occur during this period under the influence of adverse factors are called fetopathies.

Adverse effects, such as poor nutrition of pregnant women, improper daily routine, etc., in the phase of placental development can lead to the birth of an immature child or to fetal oligotrophy.

Characteristics of childhood periods

1 **Antenatal period** – from the moment of impregnation to the moment of birth – lasts an average of 270 days; however, the calculation is usually conducted practically for 280 days, starting from the first day of the last menstrual cycle of a woman.

Childbirth at 38–41 weeks of pregnancy is considered a delivery at term, before the 37th week – premature, 42 weeks and more - postmature birth.

There are several periods of antenatal development:

A. Germinal or embryonic period begins from the moment of fertilization of the ovum and ends with the implantation of the blastocyte into the endometrial mucosa. Its duration is 1 week.

B. The implantation period lasts 40–48 hours. Damage to the zygote by teratogenic factors in the first two weeks after fertilization can cause embryonic death, ectopic pregnancy, malformations with a violation of the embryonic axis (asymmetric and not completely separated twins, cyclopia,

renal aplasia, etc.). Developmental malformations that occur during this period of gestation, including due to chromosomal aberrations and gene mutations, are called blastopathies.

C. The embryonic period (from the moment the embryo attaches to the uterine wall to the formation of the placenta) lasts 5-6 weeks. Embryo nutrition comes from the embryo sac (amniotrophic type of nutrition). The most important feature of the period is the anlage and organogenesis of almost all internal organs of the unborn child. However, the terms of their maximum development are different. Depending on this, certain fetal abnormalities are formed. Embryonic lesions under the influence of teratogenic exogenous and endogenous factors are called embryopathies. They are manifested by malformations of certain organs and systems, teratomas (embryocytomas), and abortion.

D. Neofetal (embryo-fetal) period lasts 2 weeks. During this period, the formation of the placenta occurs and the formation of internal organs, except the CNS and endocrine system, ends. It should be noted that the proper formation of the placenta will help to establish normal placental blood circulation and ensure further intensive growth of the fetus.

E. The fetal period lasts from the 9th week of prenatal development until birth. There are early fetal half-life (from the 9th week to the end of the 28th week) and late fetal half-life (after the 28th week till birth). Diseases that occur during this period are called fetopathies. Fetal damage can cause premature termination of pregnancy and birth of a baby with low birth weight and functionally immature, asphyxia at birth, metabolic and other disorders of adaptation to extrauterine life. Late fetal period provides the process of depositing many nutrients that can not be sufficiently administered to the child with breast milk (calcium salts, iron, copper, vitamin B12).

2 **The intranatal period** lasts from the appearance of regular labor until the moment of umbilical cord compression (usually from 2-4 to 15-18 hours). At this time, there may occur injuries of the central and peripheral nervous systems, circulatory or respiratory disorders, infection of the fetus with pathogenic microflora from the birth canal.

3 **Extrauterine period:**

3.1 The neonatal newborn period is a period of adaptation to extrauterine life and lasts from birth to the 28th day. There are early neonatal period (from the moment of umbilical cord ligation to the end of the 7th day) and late neonatal period (from the 8th to the 28th day of life).

The period from the 28th week of antenatal development to the 7th day of life is called perinatal.

The neonatal period is characterized by significant anatomical, functional and biochemical changes:

• the beginning of pulmonary respiration and the functioning of the pulmonary circulation with the overlap of shunts intrauterine hemodynamics (venous and arterial ducts, oval foramen) and increased blood flow in the vessels of the lungs and brain;

• transition to enteral nutrition. The activity of plastic processes and rapid weight gain are provided by a significant functional stress of the gastrointestinal tract and the nature of nutrition. Hematotrophic (placental) nutrition is replaced by lactotrophic type (breast milk);

• the child's body adapts to new, extrauterine living conditions. The functions of the body are actively transforming, being in a state of unstable balance, so the newborn is characterized by high vulnerability to adverse factors and impaired adaptation;

• there is a population of microflora;

• characteristic borderline (transient) conditions: physiological erythema, jaundice, weight loss, sexual crisis, etc.

• incomplete anatomical structure of many organs and systems, including the central and peripheral nervous system, which is manifested by the peculiarities of the regulatory processes of functional systems of the newborn. The processes of inhibition prevail over the processes of excitation, the first conditioned-reflex connections with the environment begin to form. At the age of three weeks, many children begin to respond to communication with a smile and facial expressions of joy;

• peculiarity of specific and nonspecific parts of immunity, interpreted as transient immunodeficiency. Humoral immunity is provided mainly by maternal IgG coming transplacentally to the fetus in the last trimester of pregnancy. The lack of secretory IgA is compensated by the fact that breast milk contains a large amount of it. IgM levels are low. Functional activity of lymphocytes is low, final phase of phagocytosis is imperfect. Characterized by low resistance to potentially pathogens, pus forming, gram-negative microflora and some viruses (herpes, cytomegalovirus, Coxsackie B);

• predisposition to generalization of infection;

• imperfection of thermoregulation.

Characteristic pathology of the neonatal period

• conditions directly related to the act of childbirth: cardiorespiratory depression, asphyxia, respiratory disorders, hemorrhages in various organs, birth injuries, hemolytic disease, etc.;

• congenital and acquired infections: intrauterine infections, umbilical wound disease; damage to the skin, intestines, respiratory tract; sepsis;

• prematurity;
• developmental defects.

Detailed characteristics of childhood periods

The neonatal period begins from the moment of birth, or more precisely - from the moment of umbilical cord ligation. Its duration is strictly individual. Since in this period the child's body adapts to new living conditions, its duration depends on the degree of maturity of the child at birth and the nature of the pregnancy. However, it is believed that the duration of the newborn period is an average of 3–4 weeks.

The neonatal period is a period of adaptation of the child to extrauterine life, which is characterized by physiological alteration of all functional systems of the body: the emergence of independent respiration, changes in blood circulation, formation of physicochemical and anatomical parameters of blood, adaptation to enteral nutrition (or breastfeeding).

In the first days after the birth of a child, it is very important to provide qualified care that creates optimal conditions for baby’s adaptation and survival.

The general level of adaptation of the newborn to new conditions should correspond to the basic adaptation indicators.

The neonatal period is characterized by intensive adaptation to new living conditions and has a number of distinctive features. In particular, the pulmonary circulation and respiratory organs begin to function.

From birth, the child's body switches to enteral way of nutrition.

All major newborn systems are characterized by a state of "unstable balance", and even small changes in environmental conditions can lead to serious changes in the health of the child.

A characteristic anatomical incompleteness of the structure of many organs and systems is their functional imperfection. Inhibitory process in the cerebral cortex predominate over excitation processes, and the child is in a state of diffuse inhibition. This is manifested by the fact that the child sleeps for 20–22 hours.

These features of the functioning of organs and systems in the neonatal period determine the specifics of the child's diseases in this period.

Thus, in the neonatal period there are such dominating pathologies: malformations of the fetus (embryopathies and fetopathies, birth injuries and infectious diseases (congenital and acquired). In the neonatal period, among the chromosomal diseases, Down's syndrome (trisomy on the 21st pair of chromosomes), Turner syndrome (monosomy on the X chromosome), Klinefelter's syndrome (trisomy on the X chromosome) and others are the most common. Among the genetic diseases, phenylketonuria (absence or insufficient activity of the enzyme phenylalanine hydroxylase), alkaptonuria (disorders of phenylalanine and tyrosine metabolism), albinism (absence of the enzyme tyrosinase) and others, are the most common. Among congenital malformations, congenital heart defects (frequency on average 8–10 cases per 1000 newborns), pylorostenosis (1–3 cases per 1000 newborns), congenital hydrocephalus (0.5–2.5 cases per 1000 newborns) are most often observed in the neonatal period. In addition, newborns are often diagnosed with congenital malformations of the face and jaws, such as cleft lip ("hare's lip") and palate ("wolf jaw"), which occur with a frequency of 1 case per 1000 births, malformations of the tongue (microglossia, macroglossia, anomalies in the attachment of the

bridle of the tongue), malformations of the nose, unusual size and ratio of the jaws, etc.

Intranatal or birth injuries are possible when the child passes through the birth canal, such as a birth tumor (swelling of the soft tissues of the anterior part of the child's head due to venous stasis when passing through the birth canal), cephalohematoma (subperiosteal hemorrhage in one or both parietal bones, rarely occipital bone), intracranial birth trauma (cerebral hemorrhage, compression and cerebral edema, cerebral circulatory disorders), bone fractures (clavicle, forearm, skull, etc.), peripheral nerve damage (facial nerve palsy, obstetric hand paralysis, etc.). Damage to the maxillofacial area in childbirth is quite rare.

In the neonatal period, children can have diseases as the result of intrauterine infection. These are congenital infections such as congenital syphilis, toxoplasmosis, listeriosis and others.

In addition, newborns are highly sensitive to the pus forming microflora. This requires strict following the rules of asepsis and antiseptics in the care of the newborn.

3.2 Infancy lasts from the 29th day to the end of the 1st year of life.

Functional features:

• close contact of the child with the mother. The mother feeds the child with her milk;

• high rates of growth, anatomical and functional improvement of all organs and systems. During the first year of life, the body length of the newborn increases by 50 %, and its body weight triples;

• high growth rate is provided by intensive metabolism and the predominance of anabolic processes, which explains the high need for essential nutrients and calories. The relative energy needs of children of this age are 3 times higher than the needs of an adult. To meet the high energy needs, child needs more food per kilogram of body weight;

• the anatomical structure and functions of the child's nervous system are improving. As the CNS differentiates rapidly, the child's neuropsychological development takes place: from the first weeks of life conditioned reflexes (1st signaling system) and motor skills are formed, complex locomotor acts (hand function, independent walking) are formed, and verbal abilities develops (2nd signaling system).

After 3-4 months of life, the child loses the acquired immunity, as the formation of their own immunity is relatively slow. However, the lack of close contact with other children explains the relatively rare incidence of childhood infections (measles, scarlet fever, chickenpox, rubella, etc.).

Characteristic pathology of infancy:

• delay in physical, mental and intellectual development. In conditions of intensive growth, feeding, inadequate needs of a growing organism can lead to the development of deficient conditions such as rickets, anemia, dystrophy;

• there is a tendency to generalize the inflammatory process. For example, infectious diseases can develop convulsions, toxicosis, and dehydration. The child's body is sensitive to pus forming microbes and, especially, to pathogens of intestinal infections, including viruses and opportunistic flora. High sensitivity to MS virus, parainfluenza viruses, and adenoviruses;

• gastrointestinal dysfunctions often develop due to anatomo-physiological features of the digestive system and the need for their intensive functioning (high demand for macronutrients and energy);

• anatomo-physiological features of the respiratory system, narrowness of the respiratory tract, immaturity of the acinus, etc., contribute to the emergence of bronchiolitis and pneumonia, which is particularly severe;

• the course of childhood infections (measles, whooping cough) is atypical and leaves no immunity;

• high incidence of sudden death syndrome.

The period of infancy lasts from the 1st month of life trough the completion of the 1st year of life. This period of the child's life is characterized by:

1. Intensive growth and weight gain of the child, but with a gradual decrement (weakening) of growth energy. Up to 4–5 months of life, there is a doubling of the weight that was at birth, and up to a year, the weight of the child triples. At the same time, the child's body height, during the first year of life, increases by 50 % compared to the initial one at birth.

2. High intensity of metabolic processes with a predominance of anabolic processes, which are necessary for rapid growth and weight gain.

3. The predominance of functional activity of the thyroid gland, which provides a high basal metabolism and anabolic processes, and the thymus gland. At the same time, the alterations in hormonal (strengthening of the basic metabolism) and immunological background predispose to body - type abnormalities exudative-catarrhal diathesis, lymphatic-hypoplastic diathesis, etc.

4. Increased intensity of growth and differentiation of brain tissue, its anatomical and functional imperfections,

increased permeability of the blood-brain barrier. This is the reason for the child's predisposition to functional seizures, frequent manifestations of meningism observed in respiratory viral diseases at this age.

5. Functional weakness of the digestive system, low activity of salivary enzymes, gastric juice, which contributes to frequent dyspepsia, are often the causes of malnutrition.

6. Intensive growth of the musculoskeletal system, which can contribute to rickets. At the same time, there is a delay in eruption of teeth; the parity and sequence of eruption of teeth is broken.

7. Insufficient development of paranasal sinuses (maxillary sinus, etc.), therefore infants have almost no sinusitis and frontitis.

8. Weakening of passive immunity and the development at 2-4 months of life of the so-called transient or physiological hypoimmunoglobulinemia, accompanied by a decrease in IgG in serum, and is characterized by delayed maturation of cellular and humoral factors of the immune system. It leads to various purulent and other infections, contributes to frequent otitis, pneumonia, etc..

9. Predisposition to diffuse reactions and inability to limit the pathological process, which leads to frequent septic conditions.

10. Intensive development of numerous conditioned reflex connections and the formation of the second signal system (language). Up to the first year, a child usually knows 8–10 words.

3.3 Period of toddler age (from 1 to 3 year).

Functional features:

• rapid improvement of motor skills and development of intellectual sphere and language;

• maintaining high rates of growth and development;

• characteristic high degree of maturity of functional systems;

• expanding contact with other children against the background of still imperfect immunity;

• maintaining oversensitivity to adverse environmental influences;

• gradual change in the nature of nutrition: expanding the range of products, "lump" nutrition, improving skills of independent eating. Acquisition of hygienic skills is important.

Characteristic pathology of toddler period:

• widespread infectious pathology: childhood infections (chickenpox, scarlet fever, measles, whooping cough), SARS, etc.;

• high injury rate, including aspiration of foreign bodies, accidental poisoning;

• predisposition to hyperplasia of lymphoid tissue, manifestation of lymphatic-hypoplastic diathesis;

• onset of a significant part of allergic diseases.

3.4 Preschool age lasts (from 3 to 6–7 years).

Functional features:

• the intensity of energy metabolism weakens, which is manifested in the gradual reduction of basic metabolism and the intensity of growth processes;

• intensive development of intelligence, physical strength, and agility. Gaming activity becomes more

complicated, memory improves. The child easily remembers verses, retells stories, learns a foreign language, develops fine motor skills;

• speech improves; the child begins to think logically, summarizes. At the age of 5, a child's vocabulary is 2500 words;

• there are gender differences in the behavior and games of boys and girls;

• the need to communicate with other children to accept both good and bad things grows;

• at the age of 5–6 years the change of deciduous teeth to permanent ones begins;

• the immune protection has already reached sufficient maturity. The predisposition to generalization of inflammatory process and toxic reactions decreases, at the same time the clinical picture of many diseases acquires the character of adult illnesses;

• the child is getting ready to go to school.

Pathology characteristic of preschool age:

• acute infectious diseases are not common, their course is mild and usually without complications;

• high frequency of atopic and parasitic diseases. Chronic diseases of polygenic nature, respiratory diseases, including allergic origin begin to form;

• a high injury rate at this age is the main cause of death.

The period of deciduous teeth lasts from 1 to 6-7 years. At this period of human life, there is a gradual improvement of all functional systems, which are still characterized by increased vulnerability. The final stage of differentiation of the nervous system is observed; stable

analytical-synthetic functions of the cerebral cortex are formed. Intensive development of intelligence and a significant complication of work occur; the ability to abstract perception appears. This age is characterized by the formation and improvement of the second signal system. Usually, at this age children speak in long phrases, think reasonably, and at the end of the period begin to perceive humor, speak fluently their native language, using declension correctly.

Among the glands of internal secretion, there is a predominance of pituitary and thymus, which provides sufficient maturity of the immune system and the development of intelligence. At the same time, a reduces the predisposition to diffuse reactions, improves the immune system. However, in the pathology of this age are most common acute childhood infectious diseases (measles, chickenpox, scarlet fever, etc.), acute respiratory viral infections and respiratory diseases. This is due to the high contagious nature of these diseases as well as the fact that most children at this age attend children's groups.

3.5 Junior school age (girls from 6–7 to 11 years, boys from 6–7 to 12 years).

Functional features:

• the improvement of the child's body functions continues;

• change of deciduous teeth to permanent ones occur;

• characteristic clear gender differences between boys and girls in the type of growth, maturation, and build;

• intelligence develops quickly, memory improves. Complex coordination movements of small muscles develop, making it possible to write;

• the child begins to attend school, spends less time in the open air, spends more time at the desk, the strain on the nervous system and the psyche increases;

Characteristic pathology of junior school age:

• impaired posture and vision;

• caries;

• infectious incidence persists;

• the incidence of gastrointestinal, cardiovascular and allergic diseases increases;

• the number of obese children is on the rise;

• the main cause of death remains injuries.

The period of junior school age covers the age of 7 to 12 years. In this age group of children the following features are the most characteristic:

1. The morphological differentiation of cells of the cerebral cortex, especially the motor area, and the formation of the peripheral innervation apparatus are completed.

2. A stable balance of excitation and inhibition processes with some predominance of excitation and dominance of the cerebral cortex over the subcortical area, as well as autonomic functions is characteristic.

3. Muscle mass increases significantly and motor skills such as speed, agility, strength, and endurance, develop.

4. Thyroid and gonadal hormones predominance, so endocrine dysfunction is possible.

Among the pathologies of this period are acquired chronic diseases of the heart (rheumatism, myocarditis, etc.), kidneys (pyelonephritis, glomerulonephritis, etc.), nervous system, posture disorders, pathology of the organs of vision, etc.

7. Senior school age (girls from 12 years, boys from 13 years).

Functional features:

• completion of maturation of all anatomical and functional structures;

• alteration of the endocrine system, intensive puberty, the formation of the reproductive system and sexual behavior of the individual;

• social features due to changes in the nature and conditions of study, daily life; and choice of profession;

• anhanced growth combined with active neuroendocrine rearrangement and intensification of all functional systems;

• heterochrony of the development of organs and systems;

• formation of psychological character features, stereotypes of behavior and bad habits that affect health not only in adolescence, but also in later life.

Characteristic pathology of senior school age:

• disorders of physical and sexual development, the problems of reproductive health;

• instability of hormonal, neurogenic and autonomic regulation of internal organs, which leads to their functional disorders, including neurocirculatory dysfunction, diffuse nontoxic goiter, hypotensive and hypertensive conditions;

• diseases of the gastrointestinal tract (gastritis, duodenitis, and peptic ulcer disease);

• increase in chronic inflammatory, autoimmune, lymphoproliferative and some viral diseases due to endocrine rearrangement and increased influence of exogenous factors on

the immune system. The severity of atopic diseases in many adolescents is declining;

• obesity;

• the spread of substance abuse, drug addiction, and sexually transmitted diseases.

Puberty (senior school age) begins at 12 years, but its timing in some individuals varies considerably. In girls puberty occurs most often at the age of 12–16 years, in boys – 13–18 years. This period is characterized by changes in the endocrine system with a predominance of functional activity of the genital glands. There is the emergence and development of traits characteristic of sex, the development of secondary sexual characteristics: in girls – the growth of the breasts, the appearance of menstruation and pubic hair, and hair in the armpits; in boys – voice breakage, growth of pubic hair, facial hair, chest hair, and hair in the axillary cavities, and the appearance of pollution. The proportions of the body and functional features of various organs and systems of children at this period acquire the features of adult ones. There is an intensive psychological development, formation of the will, consciousness, citizenship, morality, character, and personality of the adolescent.

Among the pathologies of this period, the most important are psychoneurosis, functional disorders of the heart (functional cardiopathy, autonomic dysfunction, etc.), dysfunction of the endocrine glands (hyperthyroidism, obesity, etc.), genital tract development defects (dysmenorrhea, amenorrhea, etc.), and gastrointestinal malformations (gastritis, duodenitis, peptic ulcer disease).

The psychomotor development of the child reflects the formation of various parts of the child's nervous system at certain periods of life. Assessment of psychomotor

development of the child is carried out at each preventive examination using the table (Appendix E), which identifies the age-specific fearures of the child`s psychomotor development.

Assessment of psychomotor development of the child is carried out according to the following criteria:

- motor skills – purposeful manipulative activity of the child;
- statics – fixation and retention of certain parts of the torso in the required position;
- sensory reactions – the formation of appropriate reactions to light, sound, pain, and touch;
- speech – expressive speech and language comprehension;
- mental development – positive and negative emotions, the formation of social age.

Features of collecting the medical history of the child

Only after a detailed examination of the patient and diagnosis of the disease, it is possible to start proper and timely and treatment of a sick child. It is possible to become a qualified physician only by mastering the skills of objective clinical examination. The basis of timely diagnosis and proper care and treatment is the method and technique of clinical objective examination.

Despite the large number of modern instrumental research methods that are actively used in clinical practice, not only have physical examination methods not lost their significance, but, on the contrary, they have become even more necessary. It should be noted that often even modern instrumental research methods become a source of diagnostic errors. Diagnosis of diseases in children and assessment of

their overall condition is a rather complex problem, much more difficult than the adult assessment, because it can be difficult or impossible to obtain an accurate description of the child's feelings and complaints. The diagnostic process begins with the first contact with a sick child, and collecting medical history is the first step towards diagnosis.

Interview is the most important method of examining sick children. This method is based on the patient's memories and therefore, it is called anamnesis. Also it includes analysis and assessment of subjective feelings and experiences of the patient during the disease (or from his parents, mostly when the child is under 3 years old). The anamnesis data cannot be received by any, even the perfect, technique. Collecting the child's medical history is a very difficult task as it takes a lot of time, skill, tact and endurance.

Collecting the anamnesis of the child, it is necessary to follow certain rules to ensure the correct conclusion about the patient’s state and proper treatment and care:

1. It is necessary to collect the anamnesis patiently, calmly, politely and always be ready for anxiety, worry, and sometimes for unbalanced behavior of parents or relatives of the child.
2. It is necessary to distinguish and differentiate authentic and far-fetched feelings of the sick child and its parents, significant and secondary data that they report.
3. The patient should be questioned if possible without prompting. First of all, you should listen to complaints from the child or mother (if the child is under 3 years old), a detailed history of the disease without interruption, giving them an opportunity to speak freely.
4. If necessary, the question to the child and its parents should be asked clearly, in an understandable,

intelligible form, and this is what determines the art of collecting history.

Collection of anamnesis in children has certain features. These features lie in the fact that the anamnesis is collected from children, their parents, relatives or caregivers (teachers). It is necessary to interview the child, regardless of its age. This does not give much information about the disease, but allows you to assess the overall condition of the child. You should remember that in cases with too young children, mother's complaints replace the child's complaints, and they are based only on her observations of the child.

In addition, when collecting a medical history, you should remember that the younger the child, the more detailed must be interviewing about the issues of its life history. This especially concerns the course of pregnancy, childbirth, the neonatal period, the nature of breastfeeding in the first year of life, etc.

Anamnestic data should always be evaluated critically, and not everything should be taken on faith, as there may be cases of patients (their parents) intentionally exaggerating their ill health (aggravation) and deliberately misleading the pediatrician with incorrect information (simulation). This especially concerns the adolescent girls.

In order to get the most information and not to miss important moments when collecting medical history, the interview must always follow a certain sequence. First, find out the general background information about the sick child (name, surname and age of the child, place of living, etc.). Then listen to the patient's complaints, detail them and collect medical history (anamnesis morbi), determining the chronological sequence of occurrence and development of the main symptoms of the disease (when and how the disease began,

how it manifested and developed, what was the treatment and what was its effectiveness). Having completed collecting the medical history (anamnesis morbi), the doctor must determine in detail the life history (anamnesis vitae). The obstetric anamnesis (up to 3 years) specifies the number of previous pregnancies and births of the mother, the number of miscarriages, the reasons for premature termination of pregnancy, what was the course of this pregnancy, whether the mother was sick during pregnancy and with what, what medication she received, did she do harmful work in production, etc. It is necessary to clarify whether the child was born on time, what was the act of delivery. Of particular note is the course of the neonatal period: the child's condition after birth, Apgar score, anthropometric indicators (weight, height, etc.), pathological conditions and diseases occures during the newborn period, the state of the umbilical wound. You should ask in detail about breastfeeding of the child in the first year of life. It is necessary to pay attention to the nature of feeding, the intake of complementary foods and supplements, prevention of hypovitaminosis, etc. An important element of a child's life history is information about his physical, mental and sexual development. At the same time, it should be specified when the child began to hold its head, sit, stand, and walk; when there was a first smile; how speech developed as well as various skills and abilities. It is necessary to specify the material and living conditions of the family, the conditions of upbringing, the child's behavior in the family and in the children's groups, the previous diseases, their course and effectiveness of theis treatment at different ages.

Be sure to clarify the epidemiological history, which includes data on infectious diseases and contacts with infectious patients during the last 3 weeks, as well as the

presence of infectious diseases in the family, home or children's group that the child visits. Ask about preventive vaccinations that have been given to a child and possible complications.

Collecting an allergy history, clarify if the child has symptoms of allergies, reactions to food, medicines, immune drugs, etc.

Complete the collection of anamnesis with the data on hereditary diseases in children and their relatives, the state of health of parents (genetic history).

By having complete information about the child, the health care worker can detect or prevent the disease in time. At the first visit of the child at home after discharge from the maternity (children's) hospital, it is necessary to get acquainted with the child's family and collect obstetric history (pregnancy and childbirth) and find out the possible presence of hereditary, allergic, socially dangerous diseases in the family (HIV/AIDS, tuberculosis, etc.), and diabetes mellitus. Pay special attention to possible bad habits of parents, including smoking by the mother during pregnancy and both parents after childbirth. It is necessary to find out about the problems related to the social care of the child, and if they are detected, it is necessary to inform the relevant authorities (children's services, departments (divisions) of family services, youth and sports, divisions of social services, era) to solve problems together. During each subsequent examination, it is necessary to collect the anamnesis for the previous period, taking into account the duration and severity of the course of acute diseases, the course of the post-vaccination period, etc.

Medical examination of a child under 3 years of age: its organs and systems (by a nurse). Medical examination of a child under 3 years of age has paculiarities according to its age

period. Obligatory medical preventive examinations of healthy children under 3 years of age (Order of the Ministry of Health of Ukraine of 20.03.2008 № 149) are carried out in order to monitor their health status and provide effective measures for health care and development of children of this age by:

- assessment of each child`s health status;
- assessment of physical and psychomotor development;
- assessment of breastfeeding and nutrition of the child;
- timely detection of diseases and pathological conditions;
- vaccination;
- advising parents on child care, nutrition, child development, prevention of accidents and injuries, etc.;
- definition of tactics of further medical observation and examination of the child based on the results of an obligatory medical preventive examination. According to the Order of the Ministry of Health, the room where the obligatory medical preventive examination of a child under 3 years of age is carried out must be fitled with the following equipment:
- wall thermometer;
-washbasin, liquid soap, towel, memo with handwashing technique;
- changing table;
- therapy bed;
- scales;
- height meter;
- measuring tape;
- transparent triangle;
- musical toy;
- tonometer with child size cuffs;

- phonendoscope;
- medical thermometer;
- sterile spatulas.

Obligatory medical preventive examinations of children under 3 years of age are carried out within the period specified in this order (in the first month of life – once a week, in the first year of life – once a month, in the second year of life – once every six months, in the third year of life – once a year, at the age of 3 years a clinical examination of the child's organs and systems is carried out). The local pediatrician (general practitioner – family doctor) conducts an assessment of the child's health at each obligatory medical examination based on its results.

If abnormalities in the child's health are detected, the doctor may increase the frequency of examinations and prescribe substantiated data in the child's developmental history, additional consultations and examinations in coordination with the child's parents (guardians, trustees) or their legal representatives.

When a nurse is examining a child, complaints are clarified, the skin, mucous membranes of the mouth and the condition of nasal breathing are examined. The respiratory rate is determined. Particular attention should be paid to the frequency of stool, possible pathological changes in feces (blood and mucus presence, changes in color and consistency). In case of abnormalities in the child's health, the nurse must inform the local pediatrician (family doctor).

Assessment of breastfeeding and nutrition

Assessment of breastfeeding and nutrition is made at each obligatory medical preventive examination of a child under 3 years of age. Assessment of breastfeeding and nutrition can be conducted by both a doctor and a paramedic followed

by counseling of the mother and family on the issues of breastfeeding and nutrition.

Assessment of physical development

Assessment of physical development is conducted at each obligatory preventive medical examination of a child under 3 years of age. The nurse performs anthropometric measurements (weighing, measuring the length/height and head circumference). The obtained data are notted in the relevant graphics of physical development, which are filled in separately for boys and girls. According to the results of the assessment of the child's physical development, the mother is consulted.

Assessment of psychomotor development

Assessment of psychomotor development is conducted at each obligatory preventive medical examination of a child under 3 years of age. According to the results of the assessment of psychomotor development, the mother is consulted on the child's development.

Assessment of psychomotor development of the child

Assessing the child's psychomotor development, it should be considered that the results of the examination depend on a number of factors, such as the child's mood, its comfort level, the environment in which the examination is performed, etc. A re-examination should be performed to ensure that the function is absent or reduced (Appendix G).

Based on the assessment results of the child's psychomotor development, the tactics of further medical observation is determined. If the child performs all the actions that are appropriate for his age, it is necessary to advise parents on the issue of the development. If the child is unable to perform the proposed actions or there is a delay in the

development of skills, it is necessary to advise the mother how to practice exercises with the child for development and how to use additional stimuli to develop delayed skills.

The intensity of development and changes in the dynamics of the motor, mental and sensory spheres are mostly manifested in the first year of life, which requires regular medical monitoring of the child.

It is important to know that not all children have the same rate of development according to all criteria of psychomotor development. For the first time the delay of development of certain skills in the first year of life by 1 month, in the second year by 3 months and in the third year by 6 months is not a reason to diagnose and consult a pediatric neurologist.

In this case, it is necessary to consult the mother on care for development and to appoint a dynamic examination of the child for a reassessment of psychomotor development. The timing of the follow up examination is determined by the doctor. If there is no positive dynamics in the reassessment of psychomotor disorders, an examination of the child is appointed, including consultation with a pediatric neurologist.

Advising the mother and family on child development issues

After the assessment of psychomotor development, it is necessary to consult and teach the mother and family how to take care of the child`s development. It is important to explain to the mother the importance of proper care for her child`s development.

It is important to teach the mother how to communicate with the child, to show how you can attract the child's attention, how to respond to his successes and

achievements. You should recommend to the mother to talk to the child, sing, hug, keep the child close.

During counseling, it is important to tell the mother how the child can respond to sound and touch. Explain to the mother that if the child smiles in response to her appeal, this is a sign of communication. If the child is gesturing or cooing, it is important for the mother to repeat these actions, thereby encouraging the child to new achievements.

During counseling, it is necessary to demonstrate how to play with the child. It is important to compliment the mother for good childcare practices. After that, solidify the recommendations for play and communication, asking the mother to demonstrate how she will play with the child.

If the child has moved to another age group, it is necessary to discuss with the mother recommendations for another age group.

If the mother feels that she does not have enough time to provide care for development, it is necessary to recommend her to combine this care with other care (feeding, bathing, dressing). If the mother does not have toys for the child, it is possible to use safe for the child household items as toys.

If the child is unable to perform the proposed actions, or there is a delay in the emergence of skills, it is necessary to recommend and show the mother how to conduct classes with the child for its development and how to use additional incentives to develop skills that lag behind.

Objective clinical examination of healthy and sick children of different ages is usually carried out after analysing the medical history. This clinical supervision of children

includes an examination by palpation, percussion and auscultation of all organs and systems of the child's body.

Examination is the simplest, quite reliable and important method of objective clinical examination, which can be used to analyse the overall health status of the child and identify lesions of many organs and systems of the body. Since the examination begins immediately at the first contact with the child, the pathological symptoms noticed at the initial examination can often be the starting point for a purposeful medical history taking. Besides, during the examination, there is a contact between the pediatrician and the patient, on which the results of further clinical examination depend.

However, despite the simplicity of the examination as a method of objective clinical examination, it is necessary to follow certain rules, including condtitions of examination process, its methods and plan.

Optimal conditions must be created for the examination of the child. It is important to have a good contact with the child before the examination. This is a crucial point because the results largely depend on it. The examination should be combined with the game elements. The schould be sufficient light during the examination of the child. Natural daylight is the best. If there is no such possibility, you should use fluorescent lamps. It is necessary to examine the child using direct and lateral lighting. Lateral lighting on the surface of the body helps to better identify various pulsations (heart and apical impulses, carotid pulsation, etc.), chest respiratory movements, lymph nodes, etc. The room temperature should not be lower than 22–24 °C. Tender-age infants should be undressed by their mother or people close to them. If possible, the child is completely undressed, and if this is not possible,

then the torso is sequentially exposed, and then the pelvis and lower extremities.

As for the examination method itself, it is really very simple: the child, completely (if possible) or partially undressed, is sequentially examined (face, head, torso, chest, upper and lower extremities) in direct and lateral lighting. Examination of torso and chest is best done in the upright stance of the child, while the abdominal wall is examined in the upright and horizontal position.

It is also important to follow the examination plan. First, a general examination is carried out, and then a local examination.

The general examination means the examination of the patient from head to feet to identify general symptoms of the disease, regardless of the possible location of the pathologic process. Moreover, in some cases, the general examination allows the pediatrician to make a diagnosis at once (an attack of bronchial asthma, rickets, thyrotoxicosis, Down's syndrome, etc.). During the general examination the child's body position, its consciousness, physique, somatotype, and nutrition habits are assessed.

Local examination is carried out systematically (skin, bone, muscular systems, etc.), taking into account the possible disease. Therefore, the local examination method is considered in the section "Examination methods of organs and body systems of children of different ages."

Starting the general examination, first of all, doctors pay attention to the child's body position. The patient's position can be active, passive and forced. Active position is the patient’s position, which they can change depending on the circumstances and their own needs. Passive position is when the patient can not change position without the help of others.

Forced one is considered a position taken instinctively or consciously by patients to ease their condition. The forced position is often common in children with bronchial asthma (during an attack they have a semi-sitting position), meningitis (the head is thrown back and the thighs are brought to the stomach), croupous pneumonia and pleurisy (on the sore side), etc.

During the general examination, the child's consciousness is necessarily analysed. Consciousness can be either impaired or not impaired. There are several forms of consciousness disorders (stupor, sopor, coma), which characterize the different level of violation of the basic functions of the cerebral cortex. Stupor is a state of daze when a child poorly orientates in space and answers questions slowly with some delay. During soporous state, the child is indifferent to others and does not answer questions, but his reflexes are preserved. Patients can get out of the soporous state for a short time. During coma (comatose state), a patient has very poor work of higher nervous activity, absence of consciousness, reflexes, sensitivity and movement.

At the same time, the child's mood (calm, sublime, excited, unstable) and reaction to contact with loved people and others, interest in toys, etc. are analysed. The child`s physique is taken into account, in particular height, muscular development, and fatness. The type of constitution (normosthenic, asthenic, hypersthenic), abnormal development (cleft lip, etc.) and the presence of dysembryogenesis symptoms (epicanthe, eyes hypertelorism, short neck, disproportionate limbs, etc.) are also determined. Particular attention should be paid to the presence and severity of intoxication or toxicosis symptoms. It is very important for assessing the general condition of the child.

After a general examination, a detailed examination of all organs and systems of the child's body is carried out, using other methods of objective examination (palpation, percussion and auscultation).

Palpation is a method of objective clinical examination using tactile and stereometric sensation. The method is based on sense of touch in order to assess the physical properties of tissues and organs as well as the topographic relationships between them.

Palpation being the method of clinical examination has been known for a long time. However, it was used mainly to study the physical properties of organs with superficial localization (skin, joints, pulse, etc.). Even until now, palpation is widely used to diagnose lesions of the skin, bone and muscular systems, chest, cardiovascular diseases, lymph nodes, thyroid gland, etc. With the help of palpation, information is obtained about the nature of the surface, temperature, humidity, consistency, shape, localization, size and proportion. Besides, palpation determines the sensitivity and soreness of different body parts.

The physiological basis of palpation is the tactile sensation that occurs during pressing and palpation movements and is perceived by the fingers of the person conducting the examination.

Percussion is one of the main ways of physical examination of the state of internal organs. Percussion is an examination method based on the assessment of physical properties of organs using sound generated by tapping in the projection of organs.

Percussion as a method of examining patients was proposed in 1761 by the Austrian physician Leopold Auenbrugger. He recommended the use of percussion to

diagnose various chest diseases. It is also used to get different intensity of percussion sound on different body parts in comparison.

There are comparative and topographic percussions according to the purpose of the examination.

Comparative percussion is percussion used to determine abnormal changes in the organs by comparing the sound on symmetrical parts of the body as well as different parts of the same organ with each other. Topographic percussion is used to determine the boundaries between internal organs, their size and shape. It is clear that it is possible to determine the border between two organs only in cases where the percussion sound of these organs differs significantly by characteristics. In this case, the transition line of one sound to another will be, respectively, the boundery between the organs, that is, with the projection of this boundery onto the body surface.

Auscultation (listening) is a method of objective clinical examination based on the analysis of various sounds generated during the vital activity of internal organs.

The French clinician René Laennec (1781–1826) discovered auscultation as a scientifically based method of examination. He used an improvised stethoscope made from a paper notebook rolled up in a tube near the patient's bed for the first time in 1816.

Among the numerous methods of auscultation in the modern clinic uses indirect auscultation using a stethoscope and stetofonendoskol, which make it possible to examine the patient in any position, as well as to isolate sound phenomena from local body parts.

Phonendoscope (first proposed in 1895 by Bendersky) structurally differs from the stethoscope by the presence of a special membrane that amplifies the sound. However, with the sound amplification changes its nature, which is a significant disadvantage of the phonendoscope. Therefore, a stethoscope is more common in pediatric practice.

The auscultatory method of examination is based on listening and analysis of the sound phenomena connected with activity of internal organs. The main sounds that occur during the internal organs activity are in the range of 20-5600 Hz, and the most characteristic sounds are in the range of 20-1400 Hz. A detailed description of the sounds that occur during the activity of the heart and lungs is given in the relevant sections. It should be noted that in clinical practice in terms of acoustics there are low-, medium- and high-frequency sounds with a characteristic frequency range 20–180 Hz, 180–710 Hz and 710–1400 Hz.

The human ear perceives low sounds starting at 20 Hz and high sounds in the range up to 30 kHz (mosquito buzzing). However, the greatest sensitivity is observed to sounds with the frequency close to 1000 Hz. Therefore, sounds with a frequency close to 1000 Hz seem to be louder than sounds of lower or higher ranges at the same energy. Therefore, it is more difficult to perceive weak sounds that occur after loud ones.

Thus, the pediatrician during the child disease diagnostics uses technically simple and highly informative methods of objective clinical examination. Acquirement of clinical examination methods of the child is the most important element of becoming a pediatrician.

Assessment of the general condition of sick children

The general condition severity assessment

The objective examination of the patient always begins with an assessment of the general condition. General condition is an integral clinical assessment of the patient's health based on human well-being, analysis of survey results, objective status of organ systems and sometimes the results of additional research methods.

The general condition must be distinguished from the general well-being of the patient, which even in severe diseases may remain relatively good or vice versa.

The severity of the general condition of the patient depends on the presence and intensity of impairment of vital body functions. Doctor decides on the urgency and the required amount of diagnostic and therapy measures and determines the indications for hospitalization according to the severity of the patient's condition.

The conclusion about the general condition of the patient is based mainly on subjective data (analysis of patient complaints) and data from general and local examination (objective indicators). It is important to assess the functional status of the cardiovascular system, the respiratory system and CNS (central nervous system).

Criteria for assessing the general condition:

1. Consciousness
2. Presence and severity of pain
3. Circulatory failure signs
4. Respiratory failure intensity
5. The presence and severity of dehydration
6. Position in bed and physical activity
7. Fever severity

Types of general condition:

1. Good
2. Fair
3. Serious
4. Critical
5. Terminal (agonal).

The general condition of the patient is determined as good when the functions of vital organs are not impaired. As a rule, the general condition of patients remains satisfactory in mild forms of the disease. Patients subjectively may not complain or complaints do not influence the objective state. Objective disease manifestations are not expressed sharply, the consciousness of patients is clear, motion activity is not impaired, appetite is not changed, body temperature is normal or subfebrile. The general condition is good if patients have mild diseases or the period of convalescence.

The fair condition is observed in the case of moderate dysfunction of vital organs that do not have an immediate danger to the child's life. During this condition the patient has subjective manifestations (complaints). Patients may complain of pain of different localization, intense cough, shortness in breath during dormancy or moderate physical activity, faint, sickness, vomiting. Patients during fair condition always have sharp nature of subjective sensations. During the objective examination, consciousness is always clear. An obligatory criterion of this condition is appetite disorders such as reduced appetite or its absence. Motor activity is often limited, children are most of the time in their parents' arms or in bed. There are also such symptoms as high fever with chills, frequent or debilitating cough, first-degree dehydration, second-degree respiratory distress. During fair condition, there is no cyanosis

in acute diseases, but patients with chronic diseases (e.g. heart defects) can have it.

Child has serious condition due to decompensation of vital functions of organs and systems and poses an immediate danger to life. The severity of subjective and objective manifestations is high. The serious general condition is observed in patients with intense pain syndrome. During this condition, there is often a forced position. The presence of patient's respiratory failure or third-degree dehydration, cramps, meningeal syndrome, impaired consciousness (stupefaction or stupor) always indicate the serious general condition. Cyanosis found in acutely ill patients also indicates the serious condition.

The fever intensity is not a specific criterion for the severity of the general condition as children tolerate it much easier than adults, and even with febrile figures may not have impaired activity and appetite. Persistent fever above 40 °C should always be considered as a criterion of the serious condition.

Critical condition is characterized by severe impairments of basic vital body functions, and without intensive therapy measures the patient may die soon. Subjective criteria have no clinical significance for assessing this condition. Consciousness is usually sharply suppressed, up to coma, but persists in rare cases. The patient's position is always passive, sometimes there is motor excitement (general cramps involving the respiratory muscles). Pulse is detected only in the carotid arteries, blood pressure is sharply lowered or not detected. There are such pathological types of respiration as Kussmaul respiration, Cheyne-Stokes respiration, Biot respiration. Serious and critical general condition of the patient requires timely diagnosis and hospitalization.

During the terminal (agonal) general condition, there is a complete loss of consciousness, relax muscles, weaken or absent reflexes. The pulse is detected only on the main arteries, blood pressure may not be detected, heart sounds are sharply weakened. There are periodic respiratory movements. The terminal condition can last several minutes or hours. Absence of respiration, pulse and heart sounds indicate the coming of clinical death. Often, an isoelectric line or ventricular fibrillation waves are recorded on the ECG.

An objective assessment of the general condition of a sick child is important in pediatric practice because the volume of therapeutic measures, hospitalization in day and night clinic, intensive care unit or resuscitation unit, the organization of an individual nursing unit and the disease prognosis depend on it. Moreover, not only underestimation of the severity of the condition is dangerous, but also its overestimation.

The general condition of the child is a wide-ranging concept including a set of indicators that characterize the functional capacity of various organs and systems of the body (nervous, respiratory, cardiovascular, etc.).

The assessment of the general condition is based on the results of an objective clinical and, if possible, laboratory examination. Although, it is also necessary to clarify the state of health of the sick child, which, despite its subjectivity, often corresponds to the general objective state. However, it is impossible to focus only on the state of health, because it often falsely reflects the child's condition. Thus, very often adolescent girls have numerous complaints associated with autonomic dysfunctions, but their objective condition remains good. On the contrary, there are many cases where there are no complaints, but the general condition can be serious. First of all, this applies to chronic diseases and fatal diseases.

Every pediatrician the child visits in the outpatient clinic, as well as in day and night clinic, analyses the general condition. Taking into account that the general condition of a sick child is quite changeable, the condition assessment is sometimes carried out more often than once a day.

Depending on the general condition of patients, there are five degrees of severity: good, fair, serious, critical and terminal (agonal).

A healthy child is always cheerful, full of play, interested in objects and people around them. The child's condition is good when these criteria mentioned above are absent. During this condition, there are moderate atony, anxiety, worry, etc. The child has fair general condition if there is also drowsiness, as well as atony and apathy. If the condition is determined as serious or critical, the child has various stages of impaired consciousness (stupor, semicoma, coma) and often convulsions. During the terminal (atonal) condition, the child has impaired functions of almost all organs and systems of the body.

It is difficult to objectively assess the general condition of newborns. In neonatology and midwifery is used the Apgar score to assess the condition of newborns. It was proposed by Virginia Apgar in 1952 and recommended by the World Health Organosation (WHO) scientific group for all countries of the world in 1965.

Anesthesiologist Virginia Apgar developed a score presenting a method of quickly assessing the clinical condition of the newborn during the first minutes of life and finding out the need for surgery to improve breathing. Lately she published a report included standardized assessment data of many infants condition immediately after their birth (Appendix D).

The Apgar score includes 5 criteria:

- skin colour;
- pulse rate;
- reflexes;
- muscle tone;
- respiratory effort.

Every criterion has such score as 0, or 1, or 2. Thus, the Apgar score makes it possible to quantify such clinical signs of cardiac and respiratory depression in newborns as cyanosis or skin pallor, bradycardia, suppression of the reflex response to stimulation, hypotension, apnea or terminal respiration.

The assessment of the newborn's condition is carried out immediately after its birth (at 2-5 minutes of life) and again after 30 minutes according to the Apgar score. The overall score consists of the sum of points for five main features such as the rhythm of cardiac function, the breathing pattern, muscle tone, skin color and the severity of reflexes. Each feature is evaluated on a three-point system. The maximum score of each feature is 2 points (obligatory Appendix D).

The condition of is newborn a considered good if the sum of points is 8-10 according to the Apgar score. This is the number of points that healthy newborns have. If the score is less than 8, this indicates the presence of hypoxia or the central nervous system trauma. Depending on the severity of the condition, there are three degrees of hypoxia:

a) mild degree has the Apgar score of 6-7 points: satisfactory cardiac function, cyanotic skin, shallow or irregular breathing, the debility of muscles, reinforced reflexes;

b) medium ("blue asphyxia") has 4-5 points according to the Apgar score: satisfactory cardiac function, the

absence of breathing, general cyanosis, reduced muscle tone and reflexes;

c) severe ("white asphyxia") has the Apgar score of 1-3 points, the absence of breathing and cardiac beats, pale or cyanotic skin, the muscle tone and reflexes are absent or significantly reduced.

A score of 0 means clinical death.

It is even more difficult to assess the general condition of older children than of newborns. This is due to the significant variety of pathologies. The general condition assessment of older children is based on two main principles: a) the severity of intoxication and toxicosis; b) the functional disorders intensity of body systems.

The symptom group of intoxication most often accompanies various children diseases. The severity of intoxication can be one of the main and, fairly, the objective indicators of the general child's condition. This concerns especially chronic diseases. There are such symptoms of intoxication as fatigue, headache, decreased appetite, nervousness, hypererethism, significant skin pallor, exhaustion, and the poor development of subcutaneous tissue. As a rule, the more pronounced these symptoms, the more severe the condition of the child.

Children with an acute course of the disease may have toxicosis, which dominates in the assessment of their general condition. Toxicosis is especially common among infants (up to 3 years). Toxicosis is a kind of nonspecific response to an infectious agent. This response is based on a multisystem disease of the terminal vascular bed with metabolic disorders (water-electrolyte, energy, acid-base, etc.) and clinical signs damages of almost all organs and systems in the background of obligatory neurological disorders.

The clinical signs of toxicosis in children are primarily symptoms of central nervous system disorders. Therefore, the severity of toxicosis is analysed taking into account the intensity of such following consistently developing clinical signs as atony (apathy), inactivity (adynamia), drowsiness, stupor, semicoma, coma, convulsive syndrome. In addition, there are significant disfunctions of other organs and systems of the body with the clinical signs of the central nervous system disorders. This concerns especially the changes in the respiratory and blood circulatory systems. During toxicosis there are changes in the respiratory rate (tachypnea or bradypnea), the pulse becomes frequent and of poor volume, a blood pressure decreases, heart sounds are weakened, the liver swelling and tympanites are noted, etc. During toxicosis, children quite often have dehydration, having significant dryness of the skin and mucous membranes, a decreased turgor pressure, sharp facial features.

In addition to clinical signs, functional (electrocardiography, rheography, etc.) and laboratory (hematocrit, electrolyte level, etc.) research methods must be used to determine the severity of toxicosis.

The second principle of assessment of the general condition severity is the establishment of the degree of insufficiency, intencity and spead lesion of the functional system of the child's body specific to this disease. This principle is often used when assessing the general condition of a child with chronic disease. Often, various chronic diseases are accompanied by decompensation of a certain functional system of the body. There are the signs of decompensation that determine the severity of the child's condition. Thus, respiratory diseases can cause the respiratory failure syndrome. A respiratory failure is a condition of the child's body in which

the ability of the lungs to provide a normal arterial blood gas when breathing air is limited. The respiratory failure syndrome is presented by the respiratory rate increase, the changes in the ratio of the pulse rate and respiration, the shortness of breath (dyspnea), cyanosis, as well as the changes in the external respiration (a vital capacity of the lungs, the respiratory minute volume, etc.).

There are three types of respiratory failure:

- type I — the shortness of breath (dyspnea) — it appears only during exercises (cry, etc.), an unstable perioral cyanosis, the ratio of pulse (P) to the number of respiratory movements (D) is 2.5 : 1 (normall is 3–3.5: 1);
- type II has a severe shortness of breath and cyanosis at a rest state, and the ratio of P : D is 2–1.5: 1;
- type III has a severe shortness of breath and generalized cyanosis, possible pathological types of respiration (such as Biot respiration, Cheyne – Stokes respiration, etc.), and the respiratory rate is over 150 % of the age norm.

During the diseases of the cardiovascular system, the general child's condition is determined by the stages of a circulatory failure. Circulatory failure is a pathological condition of the child's body in which the cardiovascular apparatus can not sufficiently supply blood to organs and tissues. The vascular (collapse, fainting, shock) and heart (left or right ventricular) failures can cause the circulatory failure. The severity of the condition in cardiovascular insufficiency is determined by the pulse rate, the ratio of the pulse rate to respiration, the presence and severity of shortness of breath, cyanosis, edema, liver swelling, etc.

There are three stages of the circulatory failure of children:

- stage I — there are no signs of the circulatory failure at rest state and they appear after exercises (durational cry, etc.) in the form of tachycardia and shortness of breath.;
- stage IIA — there are signs of the circulatory failure at rest state, slight shortness of breath (tachypnea 30-50% more than normal), tachycardia (pulse rate is 10-15% above than norm) and liver swelling, which protrudes 2-3 cm from the edge of the costal arch;
- stage IIB — there is the shortness of breath (the respiratory rate is 50-70% above the norm) and tachycardia (pulse rate 15-25% higher than normal); the liver protrudes 3-4 cm from the edge of the costal arch;
- stage III — there is a significant shortness of breath (respiratory rate is 70-100% higher than normal) and tachycardia (pulse rate is increased by 30-40% of the norm), hepatomegaly, significant edema (face, hydropericardium ascites, anasarca).

If children have kidney disease, the attention is paid to the severity of extrarenal symptoms (pallor, increased blood pressure, edema, the changes in the cardiovascular system, etc.) and the functional status of the kidneys. Children with kidney disease (abnormal development, glomerulonephritis, pyelonephritis, etc.) may develop the acute (ARF) or chronic (CRF) renal failure.

Vaccination and its control

Vaccination control is carried out at every mandatory medical preventive examination of a child under 3 years old. Vaccinations are carried out according to the procedure established by the Ministry of Health Care of Ukraine if there is informed consent of the parents (guardians, trustees) or their legal representatives.

A medical report about the health condition of a child under 3 years of age, based on the results of a mandatory preventive medical examination in the absence of disease or injury, is defined by the term "healthy", and if symtoms of illness or injury are detected, they are specified. The report should contain the results of an assessment of the physical and psychomotor development and nutrition of the child.

The health group and the risk one are not determined, as there is no evidence of the appropriateness of the children division between these groups. If abnormalities are detected, the doctor develops an individual examination plan for such a child.

Determing risk groups on the basis of obstetric history is also inappropriate. Only if abnormalities in the child's health are detected, appropriate medical intervention is carried out.

The risk group is determined by social factors and includes children from families in difficult circumstances. A general practioner, known as a family physician, makes codividune plans for mandatory preventive examinations for children in this group.

Parents (guardians, trustees) or their legal representatives are consulted during every obligatory preventive medical examination of a child whose age is less than 3 years old.

The consultation is carried out according to the principles of an effective consultation. The topic of consultation depends on the child`s age and identified health issues.

The basics of caring for a child of different ages

Caring for a healthy newborn baby in a maternity hospital

A midwife puts a baby on the mother's stomach, dries the baby's head and body with a heated sterile diaper, puts on clean hats and socks and covers it with a clean, dry diaper and blanket immediately after the baby's birth. The amniotic fluid, blood and meconium are removed from the skin of the newborn during drying. The remains of the vernix caseosa are not removed. In case of contamination of the body with infected amniotic fluid, the child is bathed in boiled water, thoroughly dried, preventing hypothermia. It should be noted that most newborns do not need medical interventions (including the suction of mucus from the oral and nasal cavities), which were previously used. If there is such a need, a douche (not an electric suction machine) is used for this manipulation because, in this way, there is less likelihood of complications. After the umbilical cord pulsation and before 1 minute after child's birth, the midwife changes sterile gloves and squeezes and cuts the umbilical cord. If the child's condition is good, the child is transferred to the mother's breast. In this way, skin-to-skin contact is made. It prevents heat loss by the baby's body and promotes its colonization by the mother's microflora.

When the newborn obtains the search and sucking reflexes, the midwife helps with the baby's first early breastfeeding attachment. The body temperature of the newborn is measured in 30 minutes after the birth in the axillary fossa with an electronic thermometer. The thermometry results are recorded in the developmental chart of the newborn (f. 097/o) After eye-to-eye contact between the

mother and the child (whithin 1 hour of the child's birth), the midwife after cleaning the hands carries out preventive measures of ophthalmia of the newborn using 0.5 % erythromycin or 1 % tetracycline ointment (taking into account the main role of chlamydia in the occurrence of conjunctivitis in the newborn). This manipulation is a one-time; it is performed according to the instructions. The skin-to-skin contact is carried out in the delivery room within 2 hours. After that the midwife transfers the child to a warmed changing table, clamps the umbilical cord with a sterile disposable clamp and makes anthropometric measurements. When cutting the umbilical cord and clamping the rest of it, you must follow such rules:

- wash your hands thoroughly;
- use only sterile instruments and gloves;
- use clean (or home) baby clothes;
- do not cover the stump with a diaper:
- carefully monitor the infection symptoms (hyperemia, edema; purulent or sanitizing discharge, unpleasant odor).

The midwife or nurse puts on the child clean crawlers, a shirt, a hat, socks, and gloves. It is allowed to use clean home clothes.

The child and the mother are covered with a blanket and transferred to the general ward. Compliance with the conditions of the "warm chain" (ensuing the required 36°C temperature regime) is the most acceptable. Failure to maintain an appropriate thermal regime increases the risk of hypoglycemia, metabolic acidosis, infection, respiratory disorders, and central nervous system damage in the children. The optimum air temperature is 25–28 °C. There should be no drafts from windows, doors, air conditioners, or fans. All

things necessary for the child (a diaper, a hat, crawlers, shirts, socks, a blanket) schould be prepared and warmed up in advance. Swaddling tightly is harmful to a newborn, as it reduces the efficiency of heat storage and limits general and respiratory movements of the baby. Bathing and weighing a newborn immediately after birth is not recommended due to heat loss, threfore, these manipulations are postponed. The child is weighed after skin-to-skin contact immediately before being transferred to the general ward and it is advisable to start bathing at home. Before discharging, the child must be weighed to control the physiological body weight loss.

Medical interventions (including resuscitation measures) are also performed in the appropriate thermal conditions. If the child was born by caesarean section, the baby is transported in an incubator or in a crib necessarily covered with a warm blanket. The mother and her newborn share the same ward from the time of birth until they are discharged from the maternity hospital.

Actions after childbirth include skin-to-skin contact between the mother and the baby in the delivery room; joint transportation of the child together with the mother to the general ward; breastfeeding only at the request of the child; caring for a child with the family members involment and with the medical staff help; reasonable minimization of medical interventions. All prescriptions and manipulations (vaccination, examinations for phenylketonuria, hypothyrosis, etc) are performed in a general room and in compliance with the requirements of the mother's informed consent. Thermometry is done twice a day. During the first day, the nurse teaches the mother, how to measure the child's body temperature on her own. On the first day, the nurse cares for baby’s skin, washes

them with warm running water and teaches the mother to perform all these manipulations on her own.

The care for the umbilical stump

As mentioned above, the umbilical cord is clamped and cut immediately after the child's birth. A sterile disposable clamp is applied to the umbilical cord rest at a distance of 0.3–0.5 cm from the umbilical ring after 2 hours. The physiological period for the umbilical cord stump to fall off is 5–15 days. Applying bandages to the stump of the umbilical cord and the routine use of antiseptics reduces the level of colonization of the baby's skin by the maternal microflora and leukocyte infiltration of the umbilical cord. This can prolong the time for the stump of the umbilical cord to fall off, naturally and cause infection with its hospital flora. It is not advisable to treat the stump with antiseptics and antibiotics, it is carried out only according to the indications or in the absence of early contact between mother and child. After the child and the mother are separated, the stump of the umbilical cord is treated with brilliant green 1% solution. The healing is carefuly monitored. It is necessary to monitor the cleanliness of the child's clothes. In case of contamination of the stump of the umbilical cord with urine or feces, it is necessary to wash it immediately with boiled water and a soap and to dry well with a clean diaper or napkin. The medical staff must necessarily teach the mother how to care for the stump of the umbilical cord and umbilical wound. Usually the child is discharged without symptoms of infection in the umbilical stump.

In the pediatric hospital, the care for young children should be especially thorough since the weakened immunity of a sick child can lead to infectious lesions of the skin and mucous membranes.

The mother usually cares for her child; in case of her or her relatives absence and, a nurse looks after the baby. The care manipulations depend on the age, sex and the general condition of the child.

The oral cavity care.

A healthy infant does not need to have its mouth cleaned because it can easily traumatize mucous membranes and even cause an inflammation in the mouth. The oral cleansing performed when necessary, in particular for inflammation of moldg-fungal origin, which often occurs due to weakening of the immune system. There is a technique: a cotton–gauze swab soaked in 2% sodium bicarbonate solution is used to treat the mucous membrane in accordance with the sequence: tongue, hard palate, cheeks, vestibule of the mouth. From the age of three the child should be taught to rinse its mouth after meals and before bedtime, to brush teeth in the morning and in the evening. To do this, use toothpaste for children, which is applied to the children's toothbrush. Teeth are cleaned from the outside and inside with toothbrush up-and-down motion. It is advisable that children rinse their mouths after each meal with warm water, preferably salted (a quarter teaspoon of sodium chloride per glass of water), or water with soda (3–5 g of sodium bicarbonate per glass of water). If the child is unable to rinse its own mouth, the assistant nurse (or the mother) treats it with cotton swabs soaked in a 2% sodium bicarbonate solution, using tweezers. When treating the gums, push the right and left cheeks alternately away with a spatula in order not to infect the excretory ducts of the salivary glands. If necessary, the tampon is changed and the manipulation is repeated.

Eye care is carried out 2 times a day (in the morning and in the evening before bathing), as well as if necessary.

Healthy eyes are washed with a cotton swab soaked in boiled water. Technique: two cotton swabs (one for each eye) are soaked in water, squeezed and swab each from the outer corner of the eye to the nasal bridge. If you need to repeat this manipulation, a new swab should be taken.

The manipulation ends with the treatment of orbits with a dry napkin following the same rules. If the child is seriously ill or has the risk of getting conjunctivitis, eyes way washed with a solution of furacillin 1:5000 or other weak antiseptic (decoction of chamomile, calendula, etc.). Older children clean their eyes while washing.

Nasal care is carried out twice a day, in the morning and in the evening. Technique: cotton swabs moistened with isotonic sodium chloride solution of moderate elasticity, without a solid base are introduced into the nasal cavity by rotary movements, to a depth of 1.0–1.5 cm, thereby removing residnal mucus or crusts to restore free breathing through the nose. A separate swab is used for each nasal passage. Wetting the cotton swab prevents the development of allergic reactions in the nasal mucosa, which can be caused by microvilli of cotton wool left in the nasal passages. The nasal care requires certain skills. Older children are provided with handkerchieves and taught to blow their nose carefully in a handkerchief, in case of nasal discharge and nasal breathing difficulties (Appendix I).

If necessary, ear care is carried out. Usually, the auricle is treated with a cotton swab dipped in warm boiled water. The external auditory canals are cleaned with dry cotton swabs without a solid base or with special ear sticks with a stopper. It is forbidden to use hard things in order not to injure the skin of the external auditory canal and the eardrum. This manipulation requires caution. Technique: pulling the auricle

back and down with the left hand, the nurse or doctor inserts the swab into the external auditory canal and making several rotational movements, then remove it. If necessary, the swab is changed, and the manipulation is repeated. It is enough for a child of the first year of life to treat only the auricle. When a sulfur plug is detected in the external auditory canal, it is removed. To do this, a few drops of a 3% solution of hydrogen peroxide are instilled into the ear and with the help of a cotton turunda, a softened cork is given out with rotational movements. In case of difficulty of removing the sulfur plug, this manipulation is carried out by the otorhinolaryngologist.

Nail care. The nails are cut when it is appropriate, at least once a week, so that the length of the free edge of the nail does not exceed 1–1.5 mm. The nails are cut carefully with scissors with blunt ends. On the fingers they are cut roundly, and linearly on the toes. After nails cutting, the scissors must be wiped with cotton wool soaked with 70 % ethanol or other disinfectant solution.

Care of a child hair is to wash the head and comb the hair. Every child should have its own comb. Usually, children have their hair washed (depending on the their condition) once every 7 days. Older children who are in a strict bed rest, have their heads washed as follows: the head is thrown back and fixed at neck level with a roller or pillow; the pelvis is placed on the main end of the bed. To prevent the laundry from getting soaked while washing the baby`s head, cover the babywith a cloth that does not let moisture in; wash the head with shampoo or soap and rinse quickly with warm water to evoid hypothermia of the child. The hair is dried with a towel, diaper or hair dryer.

Personal hygiene means taking care of your body and keeping it clean. The skin protects the human body from

diseases. When a child runs or jumps, it gets hot and drops of sweat appear on the skin. Besides, the skin contains a thin layer of fat, called sebum. If the skin is not washed for a long time, grease and sweat accumulate on it, trapping dust particles. Thus the skin becomes dirty and rough and no longer protects the body.

The care for a newborn baby consists of the following manipulations:

- rational breastfeeding;
- daily cleaning;
- bathing;
- massage;
- walking outdoors.

Special aspects of feeding a child:

During the first months of life, a baby`s main need is food. The best food for the baby is breast milk. Together with milk the child receives the necessary nutrients in the required amount for its healthy growth and proper development. Special protective antibodies and live bifidobacteria, transmitted with breast milk, help the child's body to form its own immune system and promote proper digestion.

It is important to put the baby to the mother's breast in the first hour after birth, and then to attach it whenever and for as long as it wants. Do not feed your baby from a bottle or otherwise, forming a need only for breastfeeding. If breastfeeding is not possible, you should consult a pediatrician. The specialist will help you choose the mixture for feeding.

Skin cleaning – how to care for a newborn:

By the time of discharging from the maternity hospital, the umbilical stump is usually dry and the child can already be bathed. If the umbilical stump is dry, but has not yet fallen off, the child is bathed in boiled water. There is no need to treat it with antiseptics or antibacterial drugs in case of umbilical stump without symptoms of inflammation.

What daily care of a newborn baby should be? Every morning, before the first or the second feeding, it is necessary to clean the skin. You should wash child's face with a warm boiled water or use thermal water for newborns. The eyes are wiped from the outer to the inner corner with a cotton swab or napkin soaked in boiled water for each eye.

With cotton swabs soaked in a pharmacy solution of sea salt, the nose is cleaned carefully not to damage the mucous membrane. The ears are carefully processed, paying attention to the folds behind the ears, nuchal and inguinal folds. If there is a white or yellow discharge at the in corners of baby`s eyes, you should consult your pediatrician. The doctor can treat conjunctivitis, blockage or obstruction of the lacrimal canal. And in case of manifestation of the disease, the doctor will detect it at an early stage.

Milky crusts on the head (cradle cap) appear due to excessive secretion of the skin glands. The care is carried out with a comb with short and frequent teeth. After bathing, the steamed crust, lubricated with baby oil, is carefully combed.

The care for a newborn baby also includes trimming baby's nails. Special nail tweezers or scissors with rounded ends are used for this. Nails should be cut after bathing, when they become soft. If the baby is crying and does not let you cut its nails, try doing it while the baby is sleeping.

Bathing for a newborn baby:

Water is the element of a newborn, because it was its natural environment not so long ago. Therefore, you should not be afraid. It is important to follow the rules in order for the baby to enjoy this important procedure for him/her. And remember that bathing is not just a hydrotherapeutic procedure to keep the baby clean, but also an important process that contributes to the baby's health. In order to run this process easily and correctly, it is important to follow the rules and recommendations below.

Hydrotherapeutic procedures are very important for a newborn. They enrich the little one`s body with healthy emotions, give the child strength and help to develop psychologically and physically. Pediatricians agree that the first bath should be the day after discharging from maternity hospital. The baby's umbilical wound heals by that time. However, even if the umbilical wound is not completely healed, the child can be bathed if you use boiled water and herbal infusion. (Appendix N)

How to bathe a newborn

Bathing conditions should be comfortable, and everything you need should be at hand. The bath is the main attribute for bathing.

It`s wrong to bathe a child in a regular bathtub. In this case, there are a lot of disadvantages: you will feel uncomfortable bending too low towards the baby. It is more difficult to control the temperature of the water, using a large bathtub; it also takes a long time to clean it. Before each bathing, the baby bath should not only be washed, but also disinfected; it is enough to pour boiling water over it. Decoctions of herbs in which children bathe are poorly washed from the acrylic and enamel surfaces of large baths; children's

plastic bath is much easier to wash. The volume of a baby bath is 30–40 liters, so bathing the baby in case of hot water outage will not cause any problems, just boil the kettle!

The are plenty of modern models of baths. They have both advantages and disadvantages. The traditional oval bath is comfortable, spacious, of various colors and inexpensive. In addition to such a bath, a special plastic slide (with suction cups) is offered, with the help of which the baby's head and back are supported. You can also buy a soft foam mattress, hammock or other appliance for bathing. You can also choose a special metal bath stand for a traditional bath. This stand is adjusted to the height of the parents so that it is convenient to bend over.

The anatomical bath has a slightly sloping slide, armrests and a ledge that prevents slipping. The mother can bathe the baby without physical assistance, because the child lies in the correct position on his own. However, in such a bath you cannot turn the baby on its tummy because of the slide.

A bath with a stand is installed on a large bath with special fasteners. When bathing, parents do not need to bend low because the tub is at a comfortable height. It is necessary that the stand has the similar sizes with the width of the adult bath. The mechanism and reliability of fastening should be checked before each use of this bath (Appendix N).

A baby bath with shower is easier to use. You do not need to scoop water from it or strain to bend and drain. This detail makes life easier for parents, but the choice is up to you. It is convenient to bathe the child in a bath with the built-in thermometer. There is no need to guess, measuring the temperature of the water with your elbow. A bath with a raised bottom is very good for the baby’s safety. These tubs are not slippery. Later, when the child gets used to hydrotherapeutic

procedures, a special inflatable children's circle is perfect for bathing, which is worn around the baby's neck and used in a large bathtub, where there is more space.

Also, you should remember about games and toys for bathing. They will help your baby to like hydrotherapeutic procedures and make it feel positive.

How often do you need to bathe your baby? Is it enough to bathe the baby in clean water or is it necessary to use children's bathing products?

The bathing process of newborns has different traditions in different countries. For example, daily bathing is mandatory from an early age in France; wet rubdown is more common in Germany; in Ukraine, the main reference point for starting hydrotherapeutic procedures is the umbilical ~~wound~~ healing factor. In most cases, the umbilical wound heals in two weeks.

If you still need to bathe a newborn baby, it is enough to wipe your child with a sponge soaked in warm water, avoiding getting water in the umbilical wound. Ukrainian babies take baths every day after the umbilical stump is finally healed.

The correct temperature of water and air is very important. The water should be warm like the body temperature 36–38 °C, and the air temperature in the bathroom should be comfortable – 23–25 °C. Children should not bathe longer than 5–7 minutes during the first months of life. In addition, it is recommend to monitor the healing of the newborn's umbilical stump. You can talk to your midwife about this.

Bathing products make it easier to cleanse the skin cleansing or minimize skin irritation. However, you should remember that even bathing in clear water at least temporarily

breaks the skin barrier function. You should make a choice in favor of children's detergents that do not contain soap, do not irritate the eyes on contact, and have a neutral or faintly acidic pH level (pH=7) in order to maintain the acid mantle.

The room where the newborn will bathe should be warm 22–24 °C, spacious, comfortable and obligatory without drafts. The water temperature should be 37–38 °C for comfortable bathing of the newborn. It is better to add a herbal infusion with bidens or chamomile to the water for bathing the baby. You can boil it yourself. These herbs have disinfectants and have a good effect on the baby's skin, increasing its protective properties.

You need to prepare clothes and other supplies for the care of the newborn after bathing:

- a towel / a diaper (baby linen);
- a diaper for bathing (optional);
- a cap;
- a shirt;
- bath products;
- brilliant green, hydrogen peroxide;
- cotton pads;
- cream, oil, powder, and ear sticks.

It is up to you to bathe the baby in a diaper or without it. It is believed that it is safer for a child to bathe in a diaper, because it creates the effect of protection. When the baby feels contact with water, the diaper can be thrown off. It is better to bathe the baby on an empty stomach before the bedtime.

The child spends a lot of energy while bathing, and warm water relaxes and calms it. Therefore, you should try to bathe your baby at the same time, then feed it, and you can put it to bed.

Daily bathing should be a pleasure for both the mother and the child. It is necessary to lower the kid in a bath very carefully. There is no place for fuss or haste here. The child should be held with one hand under the back and head, and the other hand poures water. The head should be washed at the end of bathing. The eyes are washed with boiled water prepared in advance. You should avoid sudden splashes of water on the face and stroke the child. Mother's every gesture should be gentle, accurate, and the words – sincere, full of love. Doctors recommend that the child be almost completely ~~submerged~~ in water. There is only the head above the water. The duration of "bath" procedures is relatively short, up to 10 minutes. However, if the child is positive, the pleasure can be stretched a little.

When performing a hygienic bath, the temperature in the room should be at least 22 °C. If the child is yourself than 6 months, water temperature varies between 37–38 ºC. Pouring boiling water when the child is in the water is forbidden!

Technique of hygienic bath:

The newborn is placed in a bath on a special support; in extreme cases, a rolled up diaper or towel is placed on the bottom. A rubber pad should be placed on the bottom in a large bathtub for a child.

The mother should put slowly the baby into the water and be calm and friendly. If everything is fine, she immerses her child in the water up to the heart line so that the baby ~~can~~ breathe easily. Mother supports the child with one hand and at the same time washes her child with the other hand. Never step aside (to take a towel or soap) and never turn away, as the baby needs 30 seconds for trouble to happen.

What can be added to the water:

Herbal bath infusions are good for children. It is convenient to use them while the baby is bathing in a small bath, and after switching to an adult bath, making such infusious in large quantities becomes problematic. Herbal bathing lasts 10-15 minutes, has a positive effect on the nervous system, smoothes down and cares for the skin.

Herbs for baby baths:

- chamomile;
- torilis japonica;
- calendula;
- oregano;
- valeriana, etc.

Do not bathe with celandine, tansy, sweet flag and some others, because they contain alkaloids.

To strengthen the nervous system and improve the condition of the skin, you can add sea salt to the water in proportion of a handful per bucket of water. It is allowed to spend no more than 5 minutes in such a bath, and first, you need to examine the baby's body, because scratches and diaper rash will cause pain in salt water.

After bathing, wrap the newborn baby in a towel, you do not need to wipe, just sop up water with the towel. If the umbilical wound has not yet healed, it should be treated with hydrogen peroxide 3% and brilliant green. The baby's skin can be lubricated with baby oil, a cream that protects against diaper rash can be applied to the buttocks, and if necessary, you can use a powder. Now you can dress the baby. Hygienic procedures can be considered complete after this!

The positive effect of bathing on the child's condition:

Bathing for babies is not only a pleasant end to the day and a healthy procedure, but also an additional opportunity for close communication with parents. Bathing has not only

hygiene purposes. Hydrotherapeutic procedure brings great benefits to the growing body:

- strengthening the nervous system;
- a positive effect on the emotional state of the child;
- improved appetite;
- quiet sleep;
- activated motor reflexes;
- relieved pain during stomach colic;
- tempering the child;
- maintaining emotional communication with parents.

It is necessary to wash the baby with warm running water after every diaper change. From 7–10 days of age, it is necessary to bathe it daily with baby soap or bath products "0+". The head is washed 1–2 times a week. The ideal water temperature for the first bath is 37 °C. If vaccination has been done, it is better to postpone bathing on this day. After that, it is enough to wrap the baby with a clean and soft towel or a diaper that will absorb moisture.

Newborn care products as well as towels should be individual.

Care for a 2 month old baby: the right massage for a newborn

Mother’s gentle touches not only give the child love, but also help to learn how to control its body, develop muscles for the proper functioning of organs and systems of the body (Appendix J).

Any mother can learn the secrets of baby massage. You need to do massage regularly at a certain time. It is better

to massage 20–30 minutes before meals or 1 hour after it. From the first days of discharg from the maternity hospital it is useful to put the baby on its tummy, first for a few seconds, and then gradually increasing the time up to 20 minutes. This exercise strengthens the muscles of the abdomen and neck, and stimulates digestion. At the age of 1.5–3 months, stroking the arms, legs and back to relax the muscles is done to reduce hypertonicity in the arms and legs. Massage will help the child develop faster at an older age.

How should you take care of the baby if there is a need for a special massage? First of all, you should consult a pediatrician or neurologist. Only a medical professional should massage in this case in order not to damage and ensure a proper massage care for a newborn baby.

How to care for a baby and organize a walk in the open air?

Sun and air baths are an excellent hygienic procedures that prevent heat rash and diaper rash and temper the body. Sunbathing promotes the production of vitamin D. However, parents should remember not to leave the child in direct sunlight. If there are rashes, redness, intense yellowish color of the skin, it is necessary to consult a pediatrician.

It is difficult to imagine caring for the newborn baby during the first 2–3 months without taking the baby for walkes. It is recommended to walk with your baby from the first days after discharge in summer; in autumn and winter – from 2–3 weeks of age if the air temperature is not below – 5 °C. 20–30 minutes will be enough for the first walk, then, gradually increase the time up to 1.5 hours 2 times a day. If there is no opportunity to go for a walk, you can leave the pushchair or bassinet with the child on the balcony for a while.

For baby's comfortable feeling in the street, it must be wearing one more layer of clothing compared to an adult. Outer clothing is light, comfortable and repels moisture. Everything that touches the baby's body must be made of natural materials, with seams outward.

Now you know how to properly care for a newborn with no harm to the baby, and parents have a real joy, caring for the a hild without worry and anxiety!

Caring for a child over 4 years old

By the age of four, child should learn to wash its face, ears, upper chest and arms to the elbows, and at the the age from 5 to 7 years – to wipe to the waist. It is necessary to help the child to rub well with a towel after washing until a pleasant warmth is felt.

It is obligatory to wash child's feet before going to bed, because the skin sweats a lot and dirt accumulates on it. The appearance of diaper rash and chafing, as well as the occurrence of the fungal diseases can be caused if you do not wash your feet every day, wear dirty socks and stockings. After washing the feet they should be thoroughly dried with a towel specially designed for this procedure.

An evening shower is priceless. Thus, evening hydrotherapeutic procedures have hygienic importance as well as a good effect on the nervous system. Besides, they also contribute to the tempering and rapid falling asleep.

It is recommended to wash hair of the child thoroughly because lots of sebum, dirt and dust accumulate on it.

Hygiene of nails on fingers and toes is mandatory. Long nails tend to collect dirt and it is difficult to remove it, so

they should be carefully trimmed once a week. Biting nails is not allowed in any case!

Hands and their cleanliness require special attention. The child should be explained that with the hands we hold various objects (pencils, pens, books, notebooks, balls, toys), stroke animals (cats, dogs), touch various objects (handles, chains, hooks, etc.) in toilets. Therefore dirt, which is often invisible on these objects, remains on the fingers. If you take food with unwashed hands, the dirt gets first into the mouth and then into the body. Therefore, it is necessary to wash your hands before eating, after visiting the toilet, after any other activity (cleaning the room, working in the yard, playing with animals, etc.) and before going to bed.

Examples of the test control to the topic ″**Features of child care it different ages: period of the development assessment of the general condition and elements of the neuropsychic development of the child**″

1. The maximum growth rate is noted

– In adolescence

\+ In early childhood

– During the period of deciduous teeth

– At the preschool period

2. The period of deciduous teeth lasts

– From 4 to 6–7 years

\+ From 1 to 7 years

– From 1 to 7 months

– From 1 to 3 years

3. Exogenous teratogenic factors affecting the fetus are the following, except:

– Smoking

– Factors of harmful production

– Alcohol

\+ Mutant genes

4. Puberty begins, on average, at the following age:

\+ From 12 years

– From 15–16 years

– From 14 years

– From 10 years

– After 16 years

5. The period of infancy is characterized by the following features, except:

– Insufficient development of additional sinuses

– Increased growth and differentiation of brain tissue

– Intensive growth of bones and body weight

+ Inhibition of thyroid hormone activity

6. The fetal period lasts:

+ 270–280 days

– From fertilization to 1 month

– 13–42 weeks

– 27–28 days

7. Embryo- and fetopathy are characteristic of such a period as:

– Newborns

+ Intrauterine

– Placental

– Chest

8. Specify the physiological terms of pregnancy:

– 34–36 weeks of pregnancy

+ 38–42 weeks of pregnancy

– 22–26 weeks of pregnancy

– 28–30 weeks of pregnancy

9. The period of deciduous teeth lasts:

+ From 1 year to 6-7 years

– From 1 month to 1 year

– From 7 to 12 years

–. From 1 year and up to puberty

10. Endogenous teratogenic factors affecting the fetus include the following, except?

– Chromosomal aberrations

+ Factors of harmful production

– Mutant genes

– Genetic malformations

11. External genital organs of the girls are washed:

– in the back to front direction

– in lying position

– in sitting position

+ in the front to back direction

– in any direction

12. Children in the first six months of life should take hygienic baths:

– day after day

– once a three a day

– twice a day

+ every day

– once a week

13. Decubitus usual appears on:

+ scapulae

– hands

– medial part of the thigh

– anterior thorax

– posterior thorax

14. Hygienic baths for children of the second half of the first year of life are provided:

– once a three days

+ every other day

– every day

– twice a day

– once a week

15. Anti–bedsore measures suggest the following actions:

– to put the baby on the “hard” bed

– to change the baby`s position in bed every 6 hours

– to change the baby`s position in bed every 2 hours (if its condition allows)

+ to shake crumbs after each meal

– to put polyethylene under the baby

16. Hygienic baths for children over one year old are provided:

─ every other
+ once a week
─ once three days
─ twice a day
─ every day

17. Personal hygiene of the newborn excludes:

─ Ears and nose cleaning with a cotton wool flagella, soaked in oil

+ Mouth cleaning with a cotton swab, moistened with 3% hydrogen peroxide solution

─ Mouth is not cleaned
─ Washing at least 2 times a day
─ Washing eyes from the outer corner to the internal using two cotton swabs

18. Pine bath preparation technique:

+ 10 ml of liquid extract of pine per one bath
─ 5 ml of liquid extract of pine per 100 ml of water
─ 3 ml of liquid extract of pine per 10 ml of water
─ 100 ml of liquid extract of pine per one bath
─ 50 ml of liquid extract of pine per 100 ml of water

19. Therapeutic effect of sodium – chloride bath:

─ Increases metabolism and sweating
─ Anesthetic, disinfectant
─ Relieves itching and dry skin
─ Antipyretic
+ Calms

20. Child`s eye care consists of the following action, except:

+ Rinse in the direction from the inner to the outer corner of the eye

─ Be separate swab for each individual eye is used
─ The washing solution is diluted with warm water

— Use of two cotton swabs

— Rinse in the direction from the outer to the inner corner of the eye

21. Assessment criteria of psychomotor development of a child in the first year of life according to the Order of the Ministry of Health of Ukraine is the following, except:

— Statics

— Emotions

— Language

+ Motor activity

— Motor skills

22. The elements of neuropsychological education include the following, except:

+ Anatomical

— Mental

— Moral

— Aesthetic

23. The total sleep of a newborn baby is on average:

+ 20–22 hours

— 9–9.5 hours

—16–18 hours

— 16–16.5 hours

24. The elements of aesthetic education include the following, except:

— Fiction

+ Dancing, gymnastics

— Singing

— Artistic skill

25. Early or accelerated development is considered to be the following:

— Acquisition of skills within ± 15 days of reaching passport age

+ Mastering skills for more than 15 days after reaching passport age

─ Mastery of skills for less than 15 days after reaching passport age

─ Mastering skills and abilities close to the modern conditions of the child's existence in the metropolis

26. The mental age of the child reflects:

─ The actual age of the child at the time of the examination

+ The level of mental development of the child

─ The level of emotional development of the child

─ Calendar age of the child

27. The frequency of retardation in psychomotor development among children of the first year of life is:

─ 1–2%

─ 4–5%

+ 5–10%

─2–4%

28. What reflects the general level of neuropsychological development?

+ The degree of maturation of the CNS

─ The degree of maturation of the endocrine system

─ Emotional stability

─ Educational activities

29. Delayed development is considered to be the following:

─ Mastering skills and abilities close to modern conditions of the child's existence in the metropolis

+ Mastering skills for less than 15 days after reaching passport age

─ Mastering skills within ± 15 days of reaching passport age

─ Acquisition of skills within more than 15 days after reaching passport age

30. In pediatrics they use the following types of massage, except:

─ Vibration

─ Stroking

─ Light tapping

─ Rubbing

+ Tingling

31. Moral education includes:

+ Measures aimed at the correct, adequate behavior of the child in its environment

─ Measures aimed at the development of the child's physical shape

─ Measures aimed at the development of the child's mental abilities

─ Measures aimed at the child's correct perception of the wonderful factors of the environment and human life

32. Types of child tempering are as follows, except:

─ Air

─ Water

─ Sun

+ Food

33. A night sleep for a 6 – month old baby is on average:

+ 15–17 hours

─ 6–7 hours

─ 9–9.5 hours

─ 10–11 hours

34. A daily regimen for a 3–year – old baby includes everything, except:

+ work

– sleep
– games
– food
– bathing

35. How many times does a child under the age of 3 eat?

– 6 times a day
+ 5 times a day
– 7 times a day
– 4 times a day

36. How many times does a child over the age of 3 eat?

– 5 times a day
– 3 times a day
– 6 times a day
+ 4 times a day

37. How many words can a child speak at 1 year of age?

– 10–30 words
– 2–5 words
– a lot of words
+ 6–10 words

38. At what age can a child go to kindergarten?

– up to 1 year old
+ at 2 years of age
– at 1 year of age
– at 5 years of age

39. What is not included in the development and improvement of the child`s development under the age of 3?

– Development and improvement of motor skills
– Improvement of play skills
– Development and improvement of speech

+ Making independent decisions
─ Improvement of statics

40. A child at 2 years of age can do the following, except:

+ Recite poems by heart
─ Speak simple sentences
─ Can sit on the potty already
─ Can play independently

Tasks for self-training and self-control of the initial level of skills

Task 1

On the 2nd day after a newborn was discharged from the maternity hospital, the mother decided that the baby needed to be bathed.

1. Decide what the water temperature for a hygienic bath and the duration of the procedure should be.

A standard answer is: a comfortable bathing of the newborn should be carried out in water at a temperature of 37–38 °C, lasting up to 10 minutes.

Task 2

A girl 7–month old baby girl develops well while breastfeeding.

1. Decide the freguency of hygienic baths and the duration of the procedure.

A standard answer is: you can bath a baby every other day, lasting more than 10 minutes.

Task 3

A girl 6–month old baby girl develops well while breastfeeding.

1. Decide what the child should already do in accordance with the neuro-psychological development.

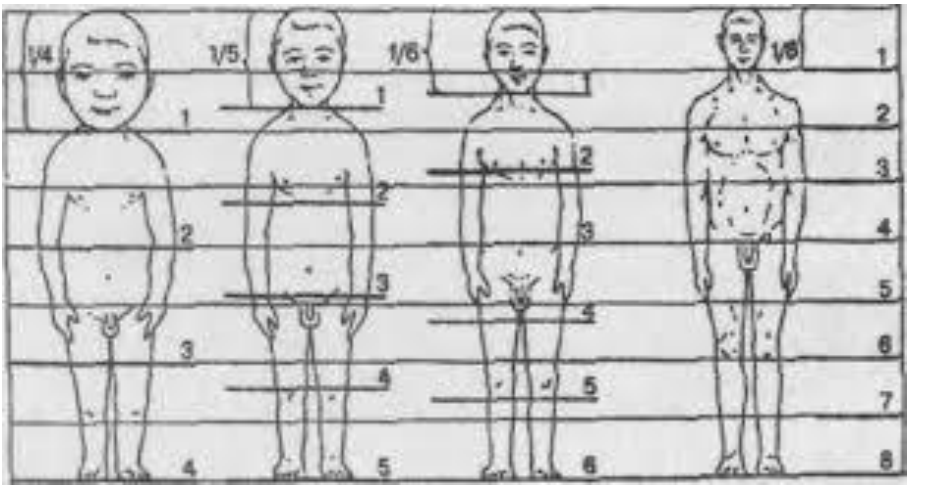
A standard answer is the: can sit on her own without support, play with toys and throw them, and tries to crawl.

Additional video material for viewing on the topic "Features of childcare at different ages: periods of development, assessment of the general condition and elements of the neuropsychie development of the child"

1. https://www.youtube.com/watch?v=xJCyFWHZFGA
2. https://www.youtube.com/watch?v=rNnLtW0yg68
3. https://www.youtube.com/watch?v=nqMxGYk96uc
4. https://www.youtube.com/watch?v=P0eg44MJ-qg
5. https://www.youtube.com/watch?v=0GfOv7XvKYM
6. https://www.youtube.com/watch?v=aDNAUW52XIw
7. https://www.youtube.com/watch?v=Tyo_edfArX8
8. https://www.youtube.com/watch?v=FuoJfc90Mq0
9. https://www.youtube.com/watch?v=TlDPuCzYzdY
10. https://www.youtube.com/watch?v=-CWJYxIvoFQ
11. https://www.youtube.com/watch?v=ZyMQPoMTu_c
12. https://www.youtube.com/watch?v=4if1ZOVJOdM

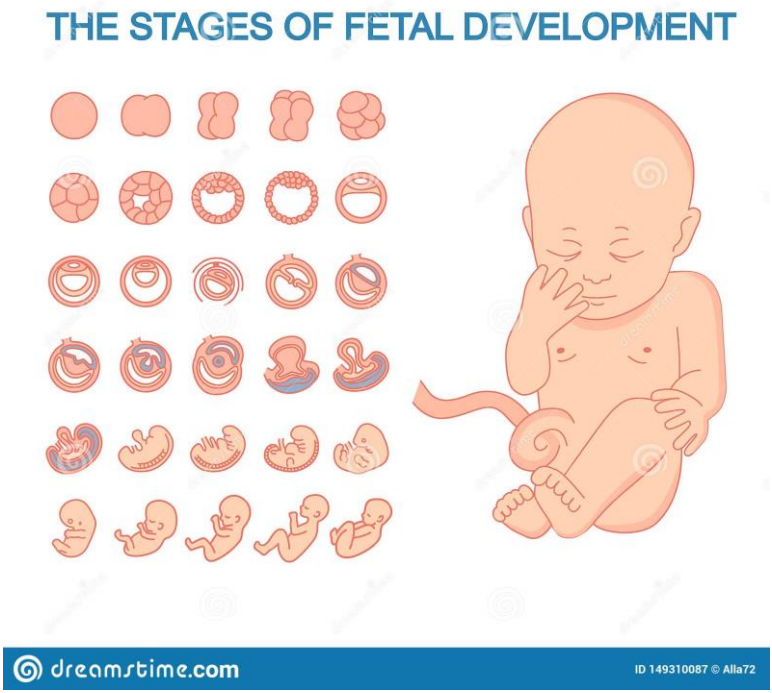
Appendix A
(mandatory)

Periods of childhood



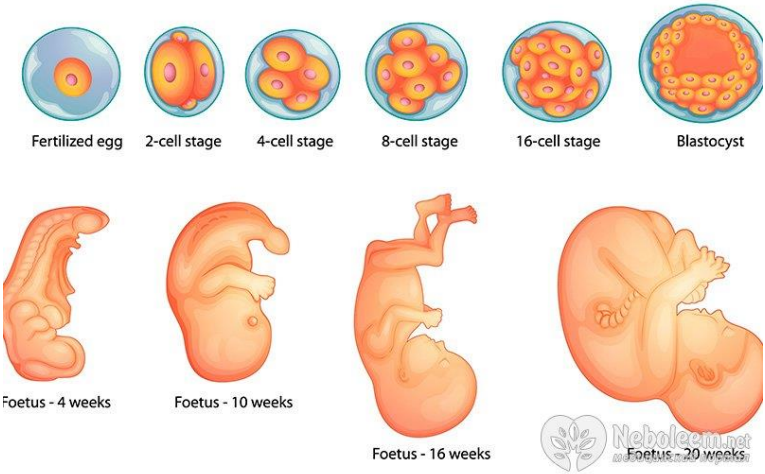
Appendix B
(mandatory)

The stages of fetal development



Appendix C
(mandatory)

Embryonic
development



Appendix D
(mandatory)

Embryonic development phases

Appendix I
(mandatory)
Apgar scale for assessing the newborn

Five criteria for evaluation:

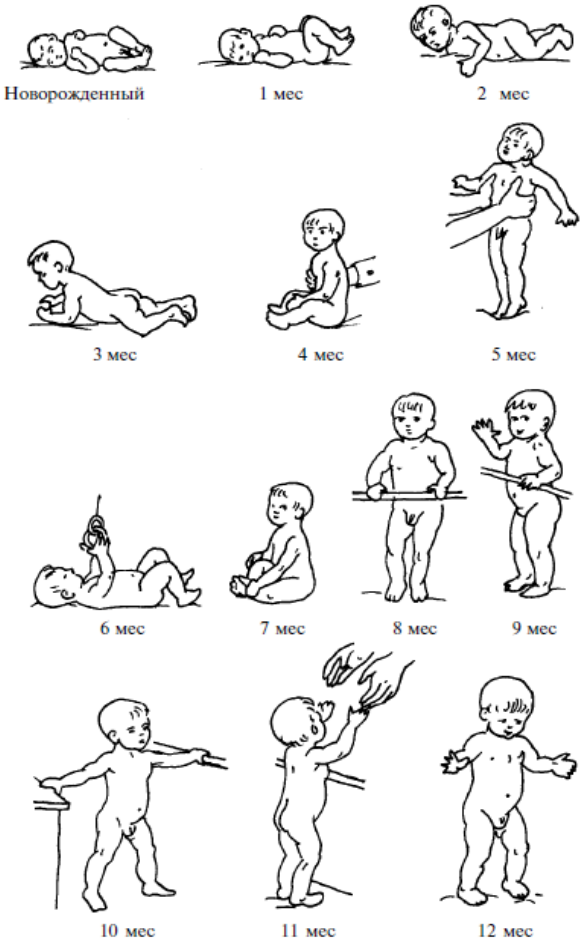
	0 points	1 point	2 points
Skin tone	white or bluish (generalized cyanosis)	pink, bluish limbs (acrocyanosis)	pink everywhere
Palpitation	missing	<100 beats per minute	> 100 beats per minute
Reflex irritability	no reaction to sole irritation	grimaces or weak movements	sudden movements, screaming, coughing, sneezing
Muscle tone	absent, limbs drooping	Reduced, weak degree of flexion of the limbs	high, active movements
Breath	missing	liquid, single respiratory movements	well, loud shout

The obtained scores at birth can be estimated as follows:
9–10 – Excellent
7– 8 – Optimal
5–6 – Slight deviations in health
3–4 – Average deviations in health
0–2 – Severe deviations in health

Appendix K
(mandatory)

Child development after birth

Appendix L
(mandatory)
Neuropsychological development of the child



Appendix M
(mandatory)
Massage techniques for newborns

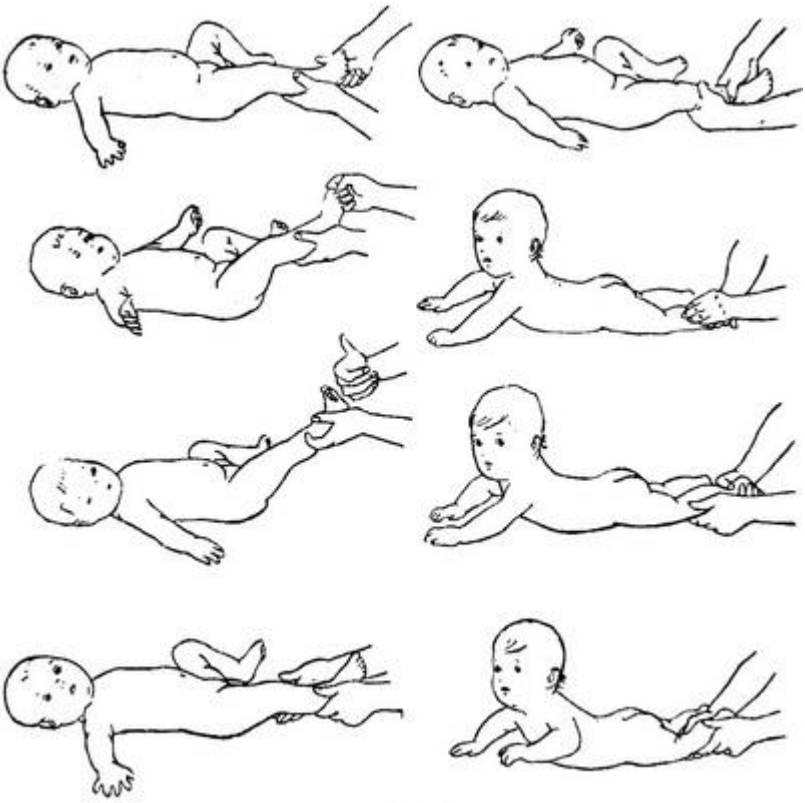


Рис. 8

Appendix N
(mandatory)
Eye and nose care for a baby

Appendix O
(mandatory)
Hygienic bath for a newborn

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Навчальне видання

Методичні вказівки

до практичного заняття
на тему «**Анатомо-фізіологічні особливості та методи обстеження дітей із захворюваннями системи крові»**
з дисципліни ***«Пропедевтика педіатрії»***
(згідно з умовами Болонського процесу)
для студентів спеціальності *222 «Медицина»*
денної форми навчання

Відповідальний за випуск О. І. Сміян
Редактор С. В. Чечоткіна
Комп'ютерне верстання В. А. Горбась

Підписано до друку 24.11.2022, поз. 63.
Формат 60×84/16. Ум. друк. арк. 5,58. Обл.-вид. арк. 5,36. Тираж 50 пр. Зам. №

Видавець і виготовлювач
Сумський державний університет,
вул. Римського-Корсакова, 2, м. Суми, 40007
Свідоцтво суб'єкта видавничої справи ДК № 3062 від 17.12.2007.