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ZAPOROZHE STATE MEDICAL UNIVERSITY
DEPARTMENT OF GENERAL PRACTICE – FAMILY MEDICINE**

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**THE RISK FACTORS AND SCREENING OF MAIN CHRONIC
NONCOMMUNICABLE DISEASES**

STUDY GUIDE

Zaporizhzhia

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Study guide compiled in accordance with the program of «General practice - family medicine». Guidelines are intended to help students prepare for practical classes and learn the material. Can be used for training of 6th-years students of international faculty, discipline «General practice - family medicine».

Михайловська Н. С.

Фактори ризику та скринінг основних хронічних неінфекційних захворювань: навчально-методичний посібник до практичних занять та самостійної роботи студентів VI курсу міжнародного факультету (спеціальність «Лікувальна справа») з дисципліни «Загальна практика – сімейна медицина» / Н. С. Михайловська, А. В. Грицай. Л.Є. Міняйленко, І.О. Стецюк - Запоріжжя: ЗДМУ, 2018. – 158с.

Навчальний посібник складений відповідно до програми «Загальна практика - сімейна медицина». Видання має на меті сприяти кращому засвоєнню теоретичних знань студентами під час підготовки до практичних занять. Посібник рекомендований для використання студентами VI курсу міжнародного факультету з дисципліни «Загальна практика - сімейна медицина».

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PREFACE

Each disease is characterized by its own risk factors, which may increase the likelihood of illness or injury. The health of the population is also influenced by various factors, both personal (modifiable: smoking, obesity, high cholesterol level, etc. and non-modifiable: age, gender, genetics) and acting at the level of each family and the general population as a whole (the level of awareness, the nutrition habits, lifestyle, adherence to health standards and the availability of health services). An important role is played by socio-economic conditions (income, educational level and working conditions) that affect the degree of vulnerability to the impact of risk factors. Despite the variety of serious diseases that are relevant to the modern world, cardiovascular diseases are still the leading cause of death in the world (up to 30-35% of the total number of deaths). Also important is the fact that the highest percentage of cardiovascular diseases and deaths from them is typical for countries with a low standard of living, which indicates not only the influence of the level of medicine on the risk of an unfavorable outcome, but also how strongly human health depends on the way of life.

This textbook is composed according to the requirements of typical working program and working program of academic discipline «General practice – family medicine», speciality 7.12010001 «General medicine», 7.12010002 «Pediatrics». The necessity of this textbook is grounded by absence of such workbooks, which satisfy requirements of basic parts of academic discipline «General practice – family medicine».

The purpose of this textbook is acquiring of knowledge and practical skills of 6th-years students during preparation for classes and final module control.

THE THEMATIC PLAN OF PRACTICAL CLASSES

Module 1. «Organizational aspects of primary health care system in Ukraine, priority role of family medicine in the public health system»

№	Topic	Number of hours
1	The place of the family medicine in the structure of a Public health system and the principles of the family medical care. The organization of the FD's work. The basis of information support of FD ambulatories and centers. The basis of information processing of out-patient clinic. Electronic patient registration systems. The telemedicine in the practice of FD.	4
2	The principles and types of medical insurance, the activity of FD. The conception and features of palliative care. The principles and methods of palliative care. The palliative care in out-patient settings. The care of patients with incurable diseases in the practice of FD, co-work with specialists.	4
3	Medico-social aspects of the population's health. The immunoprophylaxis. The preventive activity of FD. Screening program of medical examination. The stratification of risk, risk factors control for main non-epidemic diseases. The principles of rehabilitation according K. Gutenbrunner.	4
4	The chronic non-epidemic diseases. The alhorhym of FD in the case of cardio-vascular diseases. The method and assessment of ECG.	4
5	The alhorhym of FD in the case of pulmonary and urogenital diseases. The pickflowmetry.	4
6	The alhorhym of FD in the case of endocrinological and gastrointestinal diseases.	4
7	The organization of emergency in the practice of FD. The emergency in the case of sudden death, seizures, loss of consciousness on the pre-admission stage.	4
8	Final module control. Defence of the individual works.	2
	Total	30

THE THEMATIC PLAN OF INDEPENDENT WORK OF STUDENT
On-line course «The principles of therapy of out-patients with widespread
internal diseases»

<i>N^o</i>	<i>The topic</i>	<i>hours</i>	<i>Control</i>
Content module 1. The management plan of out-patients widespread internal diseases			
1	The risk factors and screening of main chronic non-epidemic diseases. The prevention in the practice of family doctor	5	Current control during practical classes
2	The expertise of disability in the case of main chronic non-epidemic diseases	12	-,-,-
3	The prophylactic medical check-up, rehabilitation and resort treatment	4,5	-,-,-
4	Features of somatic pathology management during pregnancy	3,5	-,-,-
5	The ethical and deontological aspects of family doctors activity	3	-,-,-
	Total	28	-,-,-
Content module 2. The preventive program and curing of widespread diseases of children under 5 years old			
6	The risk factors and screening of main chronic non-epidemic diseases in children	4	-,-,-
7	The preventive program of epidemic diseases and vaccination plan for children under 5 years old	4	-,-,-
8	Syndromological curing approach for children under 5 years old	4	-,-,-
	Total	12	-,-,-
Content module 3. Organization and provision of urgent medical care at the hospital stage in the practice of a family doctor			
9	Emergency in the case of pain syndrome in the practice of family doctor	5	-,-,-
10	Emergency in the case of stings and bites in the practice of family doctor	4	-,-,-
11	Emergency in the case of electrical injury and drowning in the practice of family doctor	5	-,-,-
12	Emergency in the case of frostbite and thermal injury in the practice of family doctor	4	-,-,-
	Total	18	
13	The preparation for final module control	2	
	Total	60	

TOPIC 1

THE RISK FACTORS AND SCREENING OF MAIN CHRONIC NONCOMMUNICABLE DISEASES. THE PREVENTION IN THE PRACTICE OF FAMILY DOCTOR

I. Theme actuality. Preventive healthcare consists of measures taken for disease prevention, as opposed to disease treatment. Just as health encompasses a variety of physical and mental states, so do disease and disability, which are affected by environmental factors, genetic predisposition, disease agents, and lifestyle choices. Health, disease, and disability are dynamic processes which begin before individuals realize they are affected. The primary health care covers preventive measures and the principal community health activities[1].

II. Study purposes: to know the risk factors of the main chronic non-epidemic diseases, the models of the preventive programs.

III. The practical skills: to classify the risk factors, to know the pathogenesis of diseases, trigger factors of diseases.

IV. The basic terms and notions, which have to be known by students:

Risk Factors – such as a person's background; lifestyle and environment are known to increase the likelihood of certain non-communicable diseases.

Prophylaxis is a Greek word and concept. It means any action taken to guard or prevent beforehand. Prophylaxis is the central idea in preventative medicine. People usually think medical treatment helps sick people to get healthy. Prophylactic treatment is helpful in a different way.

Primary prophylaxis tries to stop healthy people from getting sick.

Secondary prophylaxis tries to stop people who are sick from getting worse.

Healthy life style– is one which helps to keep and improve people's health and well-being. Many governments and non-governmental organizations work at promoting healthy lifestyles. They measure the benefits with critical health numbers, including weight, blood sugar, blood pressure, and blood cholesterol. Healthy living is a lifelong effect. The ways to being healthy include healthy eating, physical activities, weight management, and stress management. Healthy lifestyle is, mostly, associated with:

- Proper diet
- Physical exercise
- Proper sleeping pattern

- Personal hygiene
- Absence of bad habits or addiction
- Health education
- Safe environment
- Physical fitness
- Love through social support and healthy relationships
- Emotions

Noncommunicable diseases – also known as chronic diseases, are not passed from person to person. They are of long duration and generally slow progression. The four main types of noncommunicable diseases are cardiovascular diseases (like heart attacks and stroke), cancers, chronic respiratory diseases (such as chronic obstructed pulmonary disease and asthma) and diabetes. Noncommunicable diseases are collectively responsible for almost 70% of all deaths worldwide.

V. The content of theme

The risk factors and screening of main chronic noncommunicable diseases. The prevention in the practice of family doctor

The WHO priority areas is aimed at the prevention and reduction of "disease, disability and premature deaths from chronic noncommunicable diseases, mental disorders, violence and injuries, and visual impairment".

Noncommunicable diseases (NCDs), also known as chronic diseases, are not passed from person to person. They are of long duration and generally slow progression. The four main types of noncommunicable diseases are cardiovascular diseases (like heart attacks and stroke), cancers, chronic respiratory diseases (such as chronic obstructed pulmonary disease and asthma) and diabetes.

Chronic diseases require chronic care management as do all diseases that are slow to develop and of long duration[2].

NCDs, including heart disease, stroke, cancer, diabetes and chronic lung disease, are collectively responsible for almost 70% of all deaths worldwide. Almost three quarters of all NCD deaths, and 82% of the 16 million people who died prematurely, or before reaching 70 years of age, occur in low- and middle-income countries.

Risk Factors such as a person's background; lifestyle and environment are known to increase the likelihood of certain non-communicable diseases. They include age gender, genetics, exposure to Air Pollution, and behaviors such as smoking, unhealthy diet and physical inactivity which can lead to hypertension

and obesity, in turn leading to increased risk of many NCDs. Most NCDs are considered preventable because they are caused by modifiable risk factors.

The WHO identified five important risk factors for non-communicable disease in the top ten leading risks to health. These are raised blood pressure, raised cholesterol, tobacco use, alcohol consumption, and overweight. The other factors associated with higher risk of NCDs include a person's economic and social conditions, also known as the "social determinants of health" [5].

It has been estimated that if the primary risk factors were eliminated, 80% of the cases of heart disease, stroke and type 2 diabetes and 40% of cancers could be prevented. Interventions targeting the main risk factors could have a significant impact on reducing the burden of disease worldwide. Efforts focused on better diet and increased physical activity have been shown to control the prevalence of NCDs .

Cardiovascular disease

Although heart attacks and strokes are major killers in all parts of the world, 80% of premature deaths from these causes could be avoided by controlling the main risk factors: tobacco, unhealthy diet and physical inactivity [2].

Every year, an estimated 17 million people globally die of cardiovascular diseases (CVD), particularly heart attacks and strokes. CVDs occur almost equally in men and women. By 2010 CVD are estimated to have become the leading cause of death in developing countries, as well as developed ones.

Low- and middle-income countries are more exposed to CVD risk factors, and their populations have less access to preventive efforts than people in high-income countries. Thus, CVD affect these countries disproportionately: over 80% of CVD deaths occur in low- and middle-income countries [9].

Cardiovascular diseases are a group of disorders of the heart and blood vessels and include:

- coronary heart disease: disease of the blood vessels supplying the heart muscle;
- cerebrovascular disease: disease of the blood vessels supplying the brain;
- peripheral arterial disease: disease of blood vessels supplying the arms and legs;
- rheumatic heart disease: damage to the heart muscle and heart valves from rheumatic fever, caused by streptococcal bacteria;
- congenital heart disease: malformations of heart structure existing at birth;
- deep vein thrombosis and pulmonary embolism: blood clots in the leg veins, which can dislodge and move to the heart and lungs.

Heart attacks and strokes are usually acute events and are mainly caused by a blockage that prevents blood from flowing to the heart or brain. The most common reason is a build-up of fatty deposits on the inner walls of the blood vessels. Strokes can be caused by bleeding from a blood vessel in the brain or by blood clots.

There are many risk factors for heart diseases: age, gender, tobacco use, physical inactivity, excessive alcohol consumption, unhealthy diet, obesity, genetic predisposition and family history of cardiovascular disease, raised blood pressure (hypertension), raised blood sugar (diabetes mellitus), raised blood cholesterol (hyperlipidemia), psychosocial factors, poverty and low educational status, and air pollution. While the individual contribution of each risk factor varies between different communities or ethnic groups the overall contribution of these risk factors is very consistent. Some of these risk factors, such as age, gender or family history/genetic predisposition, are immutable; however, many important cardiovascular risk factors are modifiable by lifestyle change, social change, drug treatment (for example prevention of hypertension, hyperlipidemia, and diabetes). People with obesity are at increased risk of atherosclerosis of the coronary arteries [5].

Up to 90% of cardiovascular disease may be preventable if established risk factors are avoided. Currently practiced measures to prevent cardiovascular disease include:

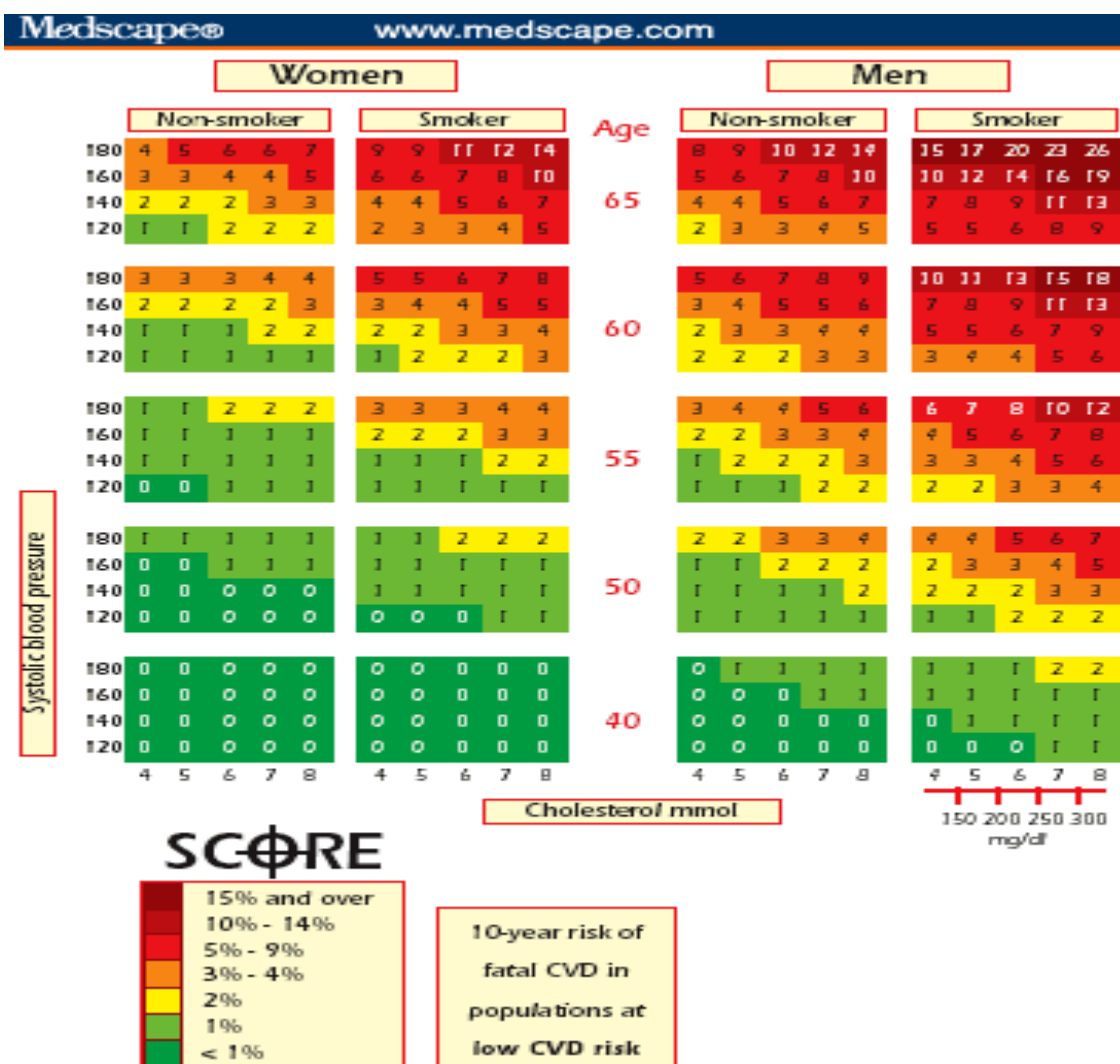
- Tobacco cessation and avoidance of second-hand smoke. Smoking cessation reduces risk by about 35%.
- A low-fat, low-sugar, high-fiber diet including whole grains and fruit and vegetables. Dietary interventions are effective in reducing cardiovascular risk factors over a year, but the longer term effects of such interventions and their impact on cardiovascular disease events is uncertain.
- At least 150 minutes (2 hours and 30 minutes) of moderate exercise per week. Exercise-based cardiac rehabilitation reduces risk of subsequent cardiovascular events by 26%, but there have been few high quality studies of the benefits of exercise training in people with increased cardiovascular risk but no history of cardiovascular disease [2].
- Limit alcohol consumption to the recommended daily limits; People who moderately consume alcoholic drinks have a 25–30% lower risk of cardiovascular disease. However, people who are genetically predisposed to consume less alcohol have lower rates of cardiovascular diseases suggesting that alcohol itself may not be protective. Excessive alcohol intake increases the risk

of cardiovascular disease and consumption of alcohol is associated with increased risk of a cardiovascular event in the day following consumption.

- Lower blood pressure, if elevated. A 10 mmHg reduction in blood pressure reduces risk by about 20%.
- Decrease non-HDL cholesterol. Statin treatment reduces cardiovascular mortality by about 31%.
- Decrease body fat if overweight or obese. The effect of weight loss is often difficult to distinguish from dietary change, and evidence on weight reducing diets is limited. In observational studies of people with severe obesity, weight loss following bariatric surgery is associated with a 46% reduction in cardiovascular risk [13].
- Decrease psychosocial stress. This measure may be complicated by imprecise definitions of what constitute psychosocial interventions. Mental stress-induced myocardial ischemia is associated with an increased risk of heart problems in those with previous heart disease. Severe emotional and physical stress leads to a form of heart dysfunction known as Takotsubo syndrome in some people. Stress, however, plays a relatively minor role in hypertension. Specific relaxation therapies are of unclear benefit.

Most guidelines recommend combining preventive strategies. The interventions aiming to reduce more than one cardiovascular risk factor may have favorable effects on blood pressure, body mass index and waist circumference; however, evidence was limited and the authors were unable to draw firm conclusions on the effects on cardiovascular events and mortality. For adults without a known diagnosis of hypertension, diabetes, hyperlipidemia, or cardiovascular disease, routine counseling to advise them to improve their diet and increase their physical activity has not been found to significantly alter behavior, and thus is not recommended. Simply providing people with a cardiovascular disease risk score may reduce cardiovascular disease risk factors by a small amount compared to usual care. However, there was some uncertainty as to whether providing these scores had any effect on cardiovascular disease events. It is unclear whether or not dental care in those with periodontitis affects their risk of cardiovascular disease [16].

Systematic COronary Risk Evaluation (**SCORE**): High & Low cardiovascular Risk Charts based on gender, age, total cholesterol, systolic blood pressure and smoking status, with relative risk chart, qualifiers and instructions.



Benefits of SCORE

- Based on a large data set tested thoroughly on European data
- Operates with hard, reproducible end points (CVD death)
- Risk of CHD and stroke death can be derived separately
- Enables the development of an electronic interactive version of the risk chart
- The SCORE risk function can be calibrated to each country's national mortality statistics

Cancer

WHO/Europe assists countries in the WHO European Region to develop national programmes for cancer control. The International Agency for Research on Cancer is the WHO body that specializes in this field. It coordinates and conducts research on causes and develops scientific strategies for cancer prevention and control [2].

Cancer causes 20% of deaths in the European Region. With more than 3 million new cases and 1.7 million deaths each year, cancer is the most important cause of death and morbidity in Europe after cardiovascular diseases.

Cancer is in many cases avoidable, and early detection increases the chance of cure substantially. Enough is already known about the causes to prevent at least one third of all cancers, and some of the most common types – including breast, colorectal and cervical cancer – can be cured if detected early.

Globally, more than 70% of all cancer deaths occur in low- and middle-income countries, which have few or no resources for the prevention, diagnosis and treatment of cancer. Regardless of resource level, all countries can implement the four basic components of cancer control – prevention, early detection, diagnosis and treatment, and palliative care – and thus avoid and cure many cancers, as well as palliating suffering [17].

Chronic respiratory diseases

Health and development in the WHO European Region are increasingly threatened by the alarming surge in preventable noncommunicable diseases. Among the most widespread of these conditions are chronic respiratory diseases, which adversely impact the quality of life of affected individuals and potentially lead to premature death. They also have large adverse economic effects on families, communities and societies in general.

WHO/Europe aims to support Member States in their efforts to reduce the toll of morbidity, disability and premature mortality related to chronic respiratory diseases. Specific objectives include surveillance to assess the current problem and monitor progress, reduction of exposure to risk factors and strengthening of health systems to improve care for people suffering from chronic respiratory diseases. A comprehensive and integrated approach is taken to address risk factors that span many different policy sectors, including transportation, industry, housing, occupational health and safety, education and health care [5].

Chronic respiratory diseases are chronic diseases of the airways and other structures of the lung. Some of the most common are asthma, chronic obstructive pulmonary disease (COPD), respiratory allergies, occupational lung diseases and pulmonary hypertension. The most important risk factors for developing or exacerbating preventable chronic respiratory diseases are:

- tobacco smoke
- indoor air pollution (caused by mould, dampness, tobacco smoke or the burning of biomass fuels)
- outdoor pollution

- allergens
- low birth weight, poor nutrition, acute respiratory infections of early childhood
- occupational dusts and chemicals[15].

Socioeconomically disadvantaged populations in low and middle-income countries are especially vulnerable to the development and exacerbation of respiratory diseases, in part because:

- they are more exposed to indoor solid fuels and unsafe occupational environments;
- occupational chronic respiratory diseases are often not adequately recognized as a problem;
- treatment drugs are often unavailable or not affordable;
- tobacco use tends to be higher among poor people than among wealthier members of society

Diabetes

Diabetes is a chronic, and largely preventable, disease that can lead to cardiovascular disease, blindness, kidney failure, loss of limbs and loss of life. It causes suffering and hardship for the approximately 60 million people in the European Region currently living with the disease, while also straining the Region's economies and health systems.

Prevalence of diabetes is increasing in the European Region, already reaching rates of 10-12% of the population in some Member States. This increase is strongly associated with increasing trends towards overweight and obesity, unhealthy diets, physical inactivity and socioeconomic disadvantage. These risk factors also contribute to the development of the other three NCDs that have become international public health priorities (cardiovascular disease, chronic respiratory diseases and cancer), making it imperative that the prevention of diabetes be integrated into population approaches to prevent NCDs as a group[2].

Type 1 diabetes is characterized by deficient insulin production and requires daily administration of insulin. Type 1 diabetes is not preventable with current knowledge.

Symptoms include excessive excretion of urine (polyuria), thirst (polydipsia), constant hunger, weight loss, vision changes and fatigue. These symptoms may occur suddenly, and the disease may present as an acute condition.

Type 2 diabetes results from the body's ineffective use of insulin (insulin resistance). It accounts for 90% of people with diabetes around the world and is largely preventable. Excess body weight - especially around the waist, physical inactivity and a high intake of saturated fatty acids all independently increase the risk of insulin resistance. This risk is heightened even with modest weight increases within the normal range (Body Mass Index under 25). Development of type 2 diabetes has also been associated with other factors, such as ethnic group, experiences and influences in early life, and socioeconomic factors.

Symptoms may be similar to those of type 1 diabetes, but are often less marked. As a result, the disease may be diagnosed several years after onset, once complications have already arisen [5].

Type 2 diabetes was until recently seen as a disease of middle-aged and elderly people, but its frequency has escalated in all age groups and the condition is now increasingly seen in adolescence and childhood.

Impaired glucose tolerance (IGT) and impaired fasting glycaemia (IFG) are intermediate conditions in the transition between normality and diabetes. People with IGT or IFG are at high risk of progressing to type 2 diabetes, although this is not inevitable.

Obesity

Obesity is one of the greatest public health challenges of the 21st century. Its prevalence has tripled in many countries of the WHO European Region since the 1980s, and the numbers of those affected continue to rise at an alarming rate, particularly among children. In addition to causing various physical disabilities and psychological problems, excess weight drastically increases a person's risk of developing a number of NCDs, including cardiovascular disease, cancer and diabetes. The risk of developing more than one of these diseases (co-morbidity) also increases with increasing body weight. Obesity is already responsible for 2–8% of health costs and 10–13% of deaths in different parts of the Region.

Both societies and governments need to act to curb the epidemic. National policies should encourage and provide opportunities for greater physical activity, and improve the affordability, availability and accessibility of healthy foods. They should also encourage the involvement of different government sectors, civil society, the private sector and other stakeholders [18].

A regional nutrient profile model has been developed as a common tool for use or adaption by Member States across Europe (on a voluntary basis and taking into account individual national circumstances) and has since been identified as a key activity in the WHO European Food and Nutrition Action Plan 2015– 2020. It has been specifically designed for the purpose of restricting marketing of unhealthy foods to children in an event to curb the obesity epidemic [2].

In July 2013 the ministers of health of the WHO European Member States adopted the Vienna Declaration on Nutrition and Noncommunicable Diseases in the Context of Health 2020. This Declaration acknowledged the high burden of disease caused by unhealthy diets in many countries of the Region and expressed particular concern about the rise of overweight and obesity among children.

As one of the major risk factors for cardiovascular disease, diabetes and cancer, obesity is also a primary focus of current worldwide efforts to tackle the increasing epidemic of NCDs [15].

The risk factors of gastrointestinal diseases:

- food;
- stress;
- sedentary behavior;
- chronic intoxication;
- occupational factors;
- genetics;
- H. Pylori;

The risk factors of urogenital diseases:

- flu, hypothermia;
- genetics (anomalies);
- traumas, physical overload;
- infectious diseases (otorhinolaryngology);
- poisoning, drugs, intoxication;
- CVD, internal diseases;
- pregnancy, neoplasms.

TESTS FOR SELF-CONTROL

1. The risk factors can be classified as following:
 - A. qualitative and quantitative
 - B. primary and secondary
 - C. modifiable and non-modifiable
 - D. positive and negative
 - E. all of mentioned above

2. What is the scale SCORE?
 - A. the scale for assessment the risk of arterial hypertension
 - B. the scale for complex cardiovascular risk assessment
 - C. the scale for total cholesterol assessment
 - D. the scale for angina pectoris functional class assessment
 - E. all of mentioned above

3. The scale SCORE includes all except:
 - A. cholesterol
 - B. blood pressure
 - C. smoking
 - D. alcohol abuse
 - E. all of mentioned above

4. The main group of risk factors of oncological diseases:
 - A. biological, chemical, physical
 - B. autoimmune
 - C. surgical
 - D. genetics
 - E. all of mentioned above

5. Which infectious diseases can lead to oncological diseases?
 - A. salmonellosis
 - B. papillomavirus
 - C. helminthiasis
 - D. flu
 - E. all of mentioned above

6. First of four elements of WHO strategy for oncological diseases are:
 - A. rehabilitation

- B. psychological support
- C. prevention
- D. medicinal curing
- E. all of mentioned above

7. According WHO report Global 2010 the reason of 71% pulmonary cancer are:

- A. tuberculosis
- B. air pollution
- C. infection
- D. smoking
- E. alcohol abuse

8. According epidemiological data the 20% of DM patients die because of such failure:

- A. renal
- B. pulmonary
- C. heart
- D. multi-organ
- E. all of mentioned above

9. Body mass index is:

- A. the rate of height to mass
- B. body mass (kg) divided by square of height (m)
- C. the rate of mass to height
- D. body mass (kg) multiplied to height (m), and divided by 100%
- E. height (m) divided by square of body mass (kg)

10. The risk factors of urogenital diseases are all except:

- A. alcohol abuse
- B. flu, cooling
- C. traumas and injuries
- D. pregnancy
- E. all of mentioned above

11. Endogenous risk factors for circulatory system diseases are:

- A. arterial hypertension
- B. inappropriate nutrition
- C. hypercholesterolemia
- D. smoking and drinking

E. A,C is correct

12. Exogenous risk factors for circulatory system diseases are:

- A. arterial hypertension
- B. smoking and drinking alcohol
- C. hypercholesterolemia
- D. inappropriate nutrition
- E. B,D is correct

13. Which of the following risk factors are related to endogenous controlled ones?

- A. age, gender, heredity
- B. arterial hypertension, dyslipidiosis
- C. the state of the environment, lifestyle
- D. climate, natural conditions

14. Which of the following risk factors relate to endogenous uncontrolled?

- A. age, gender, heredity
- B. arterial hypertension, dyslipidiosis, dysmenorrhea
- C. the state of the environment, lifestyle
- D. climate, natural conditions

15. Which of the following risk factors relate to exogenous controlled ones?

- A. age, gender, heredity
- B. arterial hypertension, dyslipidiosis, dysmenorrhea
- C. environmental condition, lifestyle
- D. climate, natural conditions

16. Which of the following risk factors refers to exogenous uncontrolled?

- A. age, gender, heredity
- B. arterial hypertension, dyslipidiosis, dysmenorrhea
- C. the state of the environment, lifestyle
- D. climate, natural conditions

17. The study of the health status of the population gives the opportunity to receive comprehensive information, including the distribution of population by groups of health. Who belongs to a healthy group?

- A. Persons with risk factors, premorbid conditions and those who have in history less than 2-3 cases of acute respiratory diseases per year.

- B. Persons who have history of 3 or more acute illnesses during the year and have no chronic diseases.
- C. Persons with a history of chronic diseases in the stage of subcompensation and short-term disability.
- D. Persons with a history of chronic diseases in the stage of compensation and short-term disability.
- E. Persons who do not have a history of acute respiratory disease, or have no more than 1 case.

18. According to the World Health Organization, the coefficient of viability of the population is an integrated indicator that characterizes the state of health of the society. Determine which of the following is used to calculate this metric.

- A. Morbidity.
- B. Budgetary expenses for social, medical and environmental programs.
- C. Fertility
- D. Disability, mortality of persons of working age.
- E. Morbidity and traumatism, physical development.

19. The risk factors for cardiovascular diseases include:

- A. the plasma glucose level is 5.6-6.9 mmol / liter
- B. the test of tolerance to carbohydrates is unsatisfactory
- C. use of alcoholic beverages
- D. absence of substitution hormonal therapy for women
- E. all of the above

20. The risk factors for cardiovascular diseases are the following indicators of lipidogram:

- A. total cholesterol level less than 5.0 mmol / l.
- B. total cholesterol level is more than 6.2 mmol / l.
- C. triglyceride level is more than 1.7 mmol / l.
- D. triglyceride level is more than 1.2 mmol / l.
- E. B,C correct

1	2	3	4	5	6	7	8	9	10
C	B	D	A	B	C	D	A	B	B
11	12	13	14	15	16	17	18	19	20
E	E	B	A	C	D	E	B	E	E

TOPIC 2

THE EXPERTISE OF DISABILITY IN THE CASE OF MAIN CHRONIC NON-EPIDEMIC DISEASES

I. Theme actuality. The expertise of disability is an important aspect of family doctor's work. The expertise of disability has clinical, social, economic, and legislative meaning. For 1/3 of out-patient the expertise of disability is important. The well-organized expertise of disability has preventive purpose. During expertise of disability the International Classification of Functioning, Disability and Health is used[7].

II. Study purposes: to know the main stages of medico-social expertise in the case of cardiovascular, pulmonary, GI, urogenital, endocrine systems in out-patients setting. The prevention of permanent and temporary disabilities.

III. The practical skills: to know the clinical expertise of cardiovascular, pulmonary, GI, urogenital, endocrine systems; the methods of functional and morphological change's evaluation in the case of these diseases, criteria of disability.

IV. The content of theme

The International Classification of Functioning, Disability and Health, known more commonly as ICF, is a classification of health and health-related domains. As the functioning and disability of an individual occurs in a context, ICF also includes a list of environmental factors.

ICF is the WHO framework for measuring health and disability at both individual and population levels. ICF was officially endorsed by all 191 WHO Member States in the Fifty-fourth World Health Assembly on 22 May 2001(resolutionWHA 54.21) as the international standard to describe and measure health and disability [2].

The ICF is presently used in many different contexts and for many different purposes around the world.

It can be used as a tool for statistical, research, clinical, social policy, or educational purposes and applied, not only in the health sector, but also in sectors such as insurance, social security, labour, education, economics, policy or legislation development, and the environment [11].

In brief, these are:

- **Clinical practice:** The ICF is relevant to many activities in clinical practice such as the consideration of health and functioning, setting goals, evaluating treatment outcomes, communicating with colleagues or the person involved. It

provides a common language across clinical disciplines and with patients or clients. The ICF is complementary to the ICD – the global standard for classifying diseases – and, when used together, they present a full picture of the health status of an individual.

- **Support services and income support:** The ICF model and classification can support eligibility assessment, service planning, and system-based data generated by administrative processes. In particular, the focus on environmental factors makes it possible to articulate clearly whether the needs of the individual require environmental changes or the provision of personal support [16].

- **Population statistics:** Classification systems have been described as the building blocks of statistical information (Madden et al 2007). When population data – such as from censuses and surveys – as well as administrative and service data are based on the same concepts and frameworks, a strong, integrated national information array can be developed. This information resource can then be used to compare the numbers of people in need of various services to the number receiving them, or can indicate which areas of the social environment are most disabling for people experiencing functioning difficulties, as just two examples.

- **Education:** The same general advantages apply in the field of education as with other policy and programme areas. The ICF, as a common language, can assist with integrating perspectives from the child, the family, the school, and service systems.

- **Policy and programmes:** The ICF supports clear, conceptual thinking about disability and health related policies at a high level. The classification can further support eligibility assessment, service planning and system-based data generated by administrative processes. If the ICF is used for these purposes across policy and programme areas as well as in population statistics, then coherent, interconnected national and international data on functioning and disability can be assembled within the population. This, in turn, facilitates planning, managing, costing, resource allocation and monitoring within and across programmes.

- **Advocacy and Empowerment:** The term 'advocacy' may include both advocacy by a person on their own behalf or on behalf of someone else, as well as broad advocacy which seeks to influence system and environmental change. The ICF, as a conceptual framework for functioning and disability related to the UN Convention on the Rights of Persons with Disabilities, supports logical arguments based on international standards, and on related information and data [22].

It conceptualizes functioning as a 'dynamic interaction between a person's health condition, environmental factors and personal factors.' ICF provides a

standard language and conceptual basis for the definition and measurement of disability, and it provides classifications and codes. It integrates the major models of disability - the medical model and the social model - as a “bio-psycho-social synthesis”. It recognizes the role of environmental factors in the creation of disability, as well as the role of health conditions (Üstün et al. 2003). Functioning and disability are understood as umbrella terms denoting the positive and negative aspects of functioning from a biological, individual and social perspective. The ICF therefore provides a multi-perspective, biopsychosocial approach which is reflected in the multidimensional model. Definitions and categories in the ICF are worded in neutral language, wherever possible, so that the classification can be used to record both the positive and negative aspects of functioning. In classifying functioning and disability, there is not an explicit or implicit distinction between different health conditions. Disability is not differentiated by etiology. ICF clarifies that we cannot, for instance, infer participation in everyday life from medical diagnosis alone. In this sense ICF is etiology-neutral: if a person cannot walk or go to work it may be related to any one of a number of different health conditions. By shifting the focus from health condition to functioning, the ICF places all health conditions on an equal footing, allowing them to be compared, in terms of their related functioning, via a common framework. For instance, arthritis has been found to have very high frequency among people in Australia with a health condition and with a disability; that is, arthritis accounts for much of the disability in the population. In contrast, conditions such as autism, dementia, Down syndrome and cerebral palsy are much higher ranked in terms of the likelihood of severe disability (AIHW 2004). The ICF covers the entire life span. An on-going process of updating the ICF is managed by WHO and its classifications network to enhance ICF relevance for the population at all ages [2].

The ICF provides a scientific, operational basis for describing, understanding and studying health and health-related states, outcomes and determinants. The health and health-related states associated with any health condition can be described using ICF. Health conditions (i.e., diseases, disorders, injuries or related states) are classified primarily in the International Classification of Diseases (ICD) which provides an etiological framework. The ICF and ICD are two complementary WHO reference classifications; both members of the WHO Family of International Classifications. ICF is not associated with specific health problems or diseases; it describes the associated functioning dimensions in multiple perspectives at body, person and social levels. The ICF conceptualizes functioning and disability in the context of health, and therefore does not cover

circumstances that are brought about solely by socioeconomic or cultural factors. Nevertheless, if poverty results in a health condition such as malnutrition, related functioning difficulties can be described using the ICF. A health condition – whether diagnosed or not – is always understood to be present when ICF is applied [5].

The definitions used in the ICF have inclusions that provide specifications, synonyms and examples that take into account cultural variation and differences across the life span. It is therefore suitable to be used in different countries and cultures. The ICF can be applied across the entire life span and is suitable for all age-groups.

ICF organizes information in two parts. Part 1 deals with functioning and disability while part 2 covers contextual factors. Each part has two components:

- Functioning and Disability:
 - Body Functions and Body Structures
 - Activities and Participation
- Contextual Factors:
 - Environmental Factors
 - Personal Factors[2].

The functioning of an individual in a specific domain reflects an interaction between the health condition and the contextual: environmental and personal factors. There is a complex, dynamic and often unpredictable relationship among these entities. The interactions work in two directions, as illustrated. To make simple linear inferences from one entity to another is incorrect; e.g. to infer overall disability from a diagnosis, activity limitations from one or more impairments, or a participation restriction from one or more limitations. It is important to collect data on these entities independently and then explore associations between them empirically [14].

Each ICF component consists of multiple domains, and each domain consists of categories that are the units of the classification. The ICF provides textual definitions as well as inclusion and exclusion terms for each class.

The functioning and disability of an individual may be recorded by selecting the appropriate category and its corresponding code and then adding the numbers or qualifiers, that specify the extent of the functioning or disability in that category, or the extent to which an environmental factor is a facilitator or a barrier. The ICF model and conceptual framework thus provide the platform for a common language and the high level structure of the classification that, in its finer details,

allows for specific description and quantification. In this way, the ICF offers users the building blocks for statistical information.

What is the difference between Body Functions and Structures? Body functions are the physiological aspects of body systems, while structures are the anatomical support. For example, sight is a function while the eye is a structure; force is a function, while muscles are structures. In some chapters, this difference may be less obvious: e.g. baldness is a problem of skin function (b850 functions of hair), not in its structure. The user should always check the definition and the inclusion and exclusion specifications attached to each category before deciding which code to use. The integrity in a function or a structure should not be used as an indicator that the supporting structure or function is intact, as well. Conversely, impairment in a function or structure should not be used to infer or assume impairment in a supporting structure or function. For example, a severe impairment in intellectual functions (b117.3) may be associated with an anatomically intact brain (s110.0), or an atrial defect in the heart (s41000.35) may be associated with a normal heart function (b410.0). As all categories of body functions and structures may be applied to a single individual, simultaneously, it becomes especially important to define the areas of interest to be described or the level of detail in each domain. Again, scope and purpose should guide the user in making the most appropriate choice [15].

Two qualifiers are described in the ICF – performance and capacity; the difference between them indicates the effect of the person's environment.

What is the difference between Activities and Body Functions? Activities may relate to the interplay of multiple functions and structures. For example, speaking (d330) requires mental functions of language (b167), plus voice (b310), plus articulation (b320), all supported by the associated structures (s3). Essentials of walking (d450) include the combination of orientation (b114), balance (b235), control of voluntary movement (b760), muscle force (b730), tone (b735), mobility of joints (b710), structural support of bones (s7700), ligaments and tendons (s7701) – as well as enabling environmental factors such as well-built roads and footpaths. It is often possible to observe the specific body functions and the more complex related actions separately.

The physical, social and attitudinal environment in which people live influences their functioning in a substantial way. The socio-cultural context in which an individual lives should be taken into consideration when coding the absence of a specific environmental factor as a barrier [2].

ICF is operationalized through the WHO Disability Assessment Schedule (WHODAS 2.0). WHODAS 2.0 was developed through a collaborative international approach with the aim of developing a single generic instrument for assessing health status and disability across different cultures and settings [5].

The new WHODAS 2.0 supersedes WHODAS II and shows the following advantages:

- A generic assessment instrument for health and disability
- Used across all diseases, including mental, neurological and addictive disorders
- Short, simple and easy to administer (5 to 20 minutes)
- Applicable in both clinical and general population settings
- A tool to produce standardized disability levels and profiles
- Applicable across cultures, in all adult populations
- Directly linked at the level of the concepts to the International Classification of Functioning, Disability and Health (ICF)[16].

WHODAS 2.0 covers 6 Domains of Functioning, including:

- Cognition – understanding & communicating
- Mobility– moving & getting around
- Self-care– hygiene, dressing, eating & staying alone
- Getting along– interacting with other people
- Life activities– domestic responsibilities, leisure, work & school
- Participation– joining in community activities

WHODAS 2.0 supersedes WHODAS II and is an altogether different instrument that is grounded in the conceptual framework of the ICF. It integrates an individual's level of functioning in major life domains and directly corresponds with ICF's "activity and participation" dimensions.

WHODAS 2.0 was developed through a collaborative international approach with the aim of developing a single generic instrument for assessing health status and disability across different cultures and settings.

The collaborative international research involved in developing WHODAS 2.0 included:

- Critical review of conceptualization and measurement of functioning and disability as well as a review of existing instruments
- Cross-cultural application study spanning 19 countries around the world
- Reliability and validity field studies including two waves of international testing using a multicenter design with identical protocols[14].

Versions. Depending on the information needed, the study design and the time constraints, the user may choose between multiple versions with different options for administration:

36-item version:

Provides most detail

Allows to compute overall and 6 domain specific functioning scores

Available as interviewer-, self-, and proxy-administered forms

Average interview time: 20 min.

12-item version

Useful for brief assessments of overall functioning in surveys

Allows to compute overall functioning score

Explains 81% of the variance of the 36-item version

Available as interviewer-, self-, and proxy-administered forms

Average interview time: 5 min[5].

Self-administration: A paper-and-pencil version of WHODAS 2.0 can be self-administered.

Interview: WHODAS 2.0 can be administered in person or over the telephone. General interview techniques are sufficient to administer the interview in this mode.

Proxy: Sometimes it may be desirable to obtain a third-party view of functioning such as; family members, caretakers or other observers.

Scoring: There are two basic options for computing the summary scores for the WHODAS 2.0 short and full versions.

Simple: the scores assigned to each of the items – “none” (0), “mild” (1) “moderate” (2), “severe” (3) and “extreme” (4) – are summed. This method is referred to as simple scoring because the scores from each of the items are simply added up without recoding or collapsing of response categories; thus, there is no weighting of individual items. This approach is practical to use as a hand-scoring approach, and may be the method of choice in busy clinical settings or in paper-pencil interview situations. As a result, the simple sum of the scores of the items across all domains constitutes a statistic that is sufficient to describe the degree of functional limitations[2].

Complex: The more complex method of scoring is called “item-response-theory” (IRT) based scoring. It takes into account multiple levels of difficulty for

each WHODAS 2.0 item. It takes the coding for each item response as “none”, “mild”, “moderate”, “severe” and “extreme” separately, and then uses an algorithm to determine the summary score by differentially weighting the items and the levels of severity. The SPSS algorithm is available from WHO. The scoring has three steps:

- Step 1 – Summing of recoded item scores within each domain.
- Step 2 – Summing of all six domain scores.
- Step 3 – Converting the summary score into a metric ranging from 0 to 100 (where 0 = no disability; 100 = full disability)[5].

Definitions.In the context of health:

- Functioning is an umbrella term for body functions, body structures, activities and participation. It denotes the positive aspects of the interaction between an individual (with a health condition) and that individual’s contextual factors (environmental and personal factors).
- Disability is an umbrella term for impairments, activity limitations and participation restrictions. It denotes the negative aspects of the interaction between an individual (with a health condition) and that individual’s contextual factors (environmental and personal factors).
- Body functions - The physiological functions of body systems (including psychological functions).
- Body structures - Anatomical parts of the body such as organs, limbs and their components.
- Impairments - Problems in body function and structure such as significant deviation or loss.
- Activity – The execution of a task or action by an individual.
- Participation - Involvement in a life situation.
- Activity limitations - Difficulties an individual may have in executing activities.
- Participation restrictions - Problems an individual may experience in involvement in life situations.
- Environmental factors - The physical, social and attitudinal environment in which people live and conduct their lives. These are either barriers to or facilitators of the person’s functioning. (WHO 2001, 212-213)[2].

TESTS FOR SELF-CONTROL

1. Functioning is a term with denotes:
 - A. for body functions
 - B. for body structures
 - C. for body activities
 - D. for body participation
 - E. an umbrella term for body functions, body structures, activities and participation

2. Disability is a term with denotes:
 - A. for impairments
 - B. for activity limitations
 - C. for participation restrictions
 - D. the negative aspects of the interaction between an individual and that individual's contextual factors
 - E. an umbrella term for impairments, activity limitations and participation restrictions

3. The ICF provides a scientific, operational basis for describing, understanding and studying health and health-related states, outcomes and determinants. The health and health-related states associated with any health condition can be described using ICF.:
 - A. a scientific basis for describing health condition
 - B. a operational basis for describing health condition
 - C. a scientific, operational basis for describing, understanding and studying health and health-related states, outcomes and determinants
 - D. associated between health conditions
 - E. a scientific, operational basis for studying outcomes and determinants

4. WHODAS 2.0 covers 6 Domains of Functioning, including all except:
 - A. Cognition, Mobility, Self-care, Getting along, Domestic responsibilities, Participation
 - B. Cognition, Mobility, Self-care, Getting along, Leisure, work & school
 - C. Cognition, Mobility, Self-care, Getting along, Life activities, Participation
 - D. Cognition, Mobility, Self-care
 - E. Cognition, Mobility, Self-care, Life activities

5. In the case of gallstone disease such job is contraindicated:

- A. Intellectual job
 - B. Long-term noise's impact
 - C. With emotional stresses
 - D. With vibration
 - E. all of mentioned above
6. The functioning of an individual in a specific domain reflects the following:
- A. interaction between the health condition and the personal factors
 - B. interaction between the health condition and the environmental factors
 - C. impact of the health condition
 - D. impact of the contextual factors
 - E. complex, dynamic relationship among all factors
7. For all patients with chronic glomerulonephritis is contraindicated all, except:
- A. Physical and emotional stresses
 - B. Weather (cold, heat, humidity, sun exposure)
 - C. Vaccination
 - D. physiotherapy
 - E. all of mentioned above
8. For mild DM is not contraindicated:
- A. Intellectual job
 - B. Work related to traffic or machinery
 - C. Job in conditions of high or low temperature
 - D. Hard physical job
 - E. all of mentioned above
9. For patient with hemolytic anemia such work is contraindicated:
- A. the job with excessive illumination
 - B. the job with excessive noise
 - C. the job with excessive CO₂ concentration
 - D. the job with excessive vibration
 - E. all of mentioned above
10. The clinical forecast for patient with cured pyelonephritis (except azotemia stage):
- A. Good
 - B. Partially good
 - C. Extremely bad

- D. Doubtful
- E. Bad

11. ICF as the international standard to describe and measure health and disability was officially endorsed in:

- A. 2011
- B. 2001
- C. 2004
- D. 2007
- E. 2009

12. In what spheres of life ICF can be used?

- A. Clinical practice
- B. Support services and income support
- C. Population statistics
- D. Education
- E. All of the above

13. ICF organizes information in two parts. What are they?

- A. Part 1- Functioning and disability, part 2- Contextual factors.
- B. Part 1-General information about the patient, part 2- Functioning and disability
- C. Part 1- Functioning and disability, part 2-Professional experience
- D. Part 1- Professional experience, part 2- Functioning and disability
- E. None of the above

14. What are the two qualifiers, that are described in the ICF?

- A. performance and capacity
- B. height and weight
- C. body functions and structures
- D. all of the above
- E. none of the above

15. What is the definition for Environmental factors?

- A. The physical, social and attitudinal environment in which people live and conduct their lives
- B. Problems an individual may experience in involvement in life situations
- C. The execution of a task or action by an individual
- D. Difficulties an individual may have in executing activities

E. Problems in body function and structure such as significant deviation or loss

16. What is the definition for Activity?

- A. The physiological functions of body systems
- B. Anatomical parts of the body
- C. Difficulties an individual may have in executing activities
- D. Problems an individual may experience in involvement in life situations
- E. The execution of a task or action by an individual

17. What is the definition for Activity limitations?

- A. The physiological functions of body systems
- B. Anatomical parts of the body
- C. Difficulties an individual may have in executing activities
- D. Problems an individual may experience in involvement in life situations
- E. The execution of a task or action by an individual

18. What is the definition for Impairments?

- A. Problems in body function and structure such as significant deviation or loss
- B. Problems an individual may experience in involvement in life situations
- C. The execution of a task or action by an individual
- D. The physiological functions of body systems
- E. Anatomical parts of the body

19. What features do not characterize professional diseases:

- A. Women are more likely to be ill
- B. Men are more likely to be ill
- C. Mostly, chronic diseases
- D. Mostly, multiple organ failure

20. The type of rehabilitation of patients is:

- A. Social
- B. Professional
- C. Medical
- D. All listed

1	2	3	4	5	6	7	8	9	10
E	E	C	A	D	B	D	A	D	A
11	12	13	14	15	16	17	18	19	20
B	E	A	A	A	E	C	A	A	D

TOPIC 3

THE PROPHYLACTIC MEDICAL CHECK-UP, REHABILITATION AND RESORT TREATMENT

I. Theme actuality. Preventive healthcare consists of measures taken for disease prevention, as opposed to disease treatment. Just as health encompasses a variety of physical and mental states, so do disease and disability, which are affected by environmental factors, genetic predisposition, disease agents, and lifestyle choices. Health, disease, and disability are dynamic processes which begin before individuals realize they are affected. Disease prevention relies on anticipatory actions that can be categorized as primal, primary, secondary, and tertiary prevention[1].

With lifestyle factors such as diet and exercise rising to the top of preventable death statistics, the economics of healthy lifestyle is a growing concern. There is little question that positive lifestyle choices provide an investment in health throughout life.

The general medical examination is a common form of preventive medicine involving visits to a general practitioner by well feeling adults on a regular basis. It is known under various non-specific names, such as the periodic health evaluation, annual physical, comprehensive medical exam, general health check, preventive health examination, medical check-up.

II. Study purposes: to know the medical check-up method for patients and healthy persons, main principles of rehabilitation.

III. The practical skills: to know the medical check-up method for patients and healthy persons, its purpose, stages, to design the complex of measures for health improvement; to know the principles of rehabilitation, its stages.

IV. The basic terms and notions, which have to be known by students:

Regular medical check-up – Regular health exams and tests can help find problems before they start. They also can help find problems early, when your chances for treatment and cure are better. By getting the right health services, screenings, and treatments, we are taking steps that help our chances for living a longer, healthier life. The age, health and family history, lifestyle choices (i.e. what we eat, how active we are, whether we smoke), and other important factors impact what and how often we need healthcare.

Medical rehabilitation – also known as physiatry or rehabilitation medicine, aims to enhance and restore functional ability and quality of life to those with physical impairments or disabilities affecting the brain, spinal cord, nerves,

bones, joints, ligaments, muscles, and tendons. A physician having completed training in this field is referred to as a physiatrist. Unlike other medical specialties that focus on a medical “cure,” the goals of the physiatrist are to maximize patients’ independence in activities of daily living and improve quality of life. Physiatrists are experts in designing comprehensive, patient-centered treatment plans, and are integral members of the care team. They utilize cutting-edge as well as time-tested treatments to maximize function and quality of life for their patients, who can range in age from infants to octogenarians.

V. The content of theme

Preventive healthcare consists of measures taken for disease prevention, as opposed to disease treatment. Just as health encompasses a variety of physical and mental states, so do disease and disability, which are affected by environmental factors, genetic predisposition, disease agents, and lifestyle choices. Health, disease, and disability are dynamic processes which begin before individuals realize they are affected. Disease prevention relies on anticipatory actions that can be categorized as primal, primary, secondary, and tertiary prevention [1].

Each year, millions of people die of preventable deaths. Leading causes included cardiovascular disease, chronic respiratory disease, unintentional injuries, diabetes, and certain infectious diseases. A lot of people die each year due to poor diet and a sedentary lifestyle. According to estimates made by the World Health Organization (WHO), about 55 million people died worldwide in 2011, two thirds of this group from non-communicable diseases, including cancer, diabetes, and chronic cardiovascular and lung diseases. Preventive healthcare is especially important given the worldwide rise in prevalence of chronic diseases and deaths from these diseases.

There are many methods for prevention of disease. It is recommended that adults and children aim to visit their doctor for regular check-ups, even if they feel healthy, to perform disease screening, identify risk factors for disease, discuss tips for a healthy and balanced lifestyle, stay up to date with immunizations and boosters, and maintain a good relationship with a healthcare provider. Some common disease screenings include checking for hypertension, hyperglycemia, hypercholesterolemia, screening for colon cancer, depression, HIV and other common types of sexually transmitted diseases such as chlamydia, syphilis, and gonorrhea, mammography, colorectal cancer screening, a Pap test (to check for cervical cancer), and screening for osteoporosis. Genetic testing can also be performed to screen for mutations that cause genetic disorders or predisposition to certain diseases such as breast or ovarian cancer [1].

The general medical examination is a common form of preventive medicine involving visits to a general practitioner by well feeling adults on a regular basis. This is generally yearly or less frequently. The general medical examination generally involves a medical history, a (brief or complete) physical examination and sometimes laboratory tests. Some more advanced tests include ultrasound and mammography.

If necessary, the patient may be sent to a medical specialist for further, more detailed examinations.

People who undergo yearly medical exams however are more likely to be diagnosed with medical problems.

It is recommended a cancer-related health check-up annually in men and women older than 40, and every three years for those older than 20.

The examination does result in better delivery of some other screening interventions (such as Pap smears, cholesterol screening, and faecal occult blood tests) and less patient worry [2].

The general public is fond of these examinations, especially when they are free of charge. Despite guidelines recommending against routine annual examinations, many family physicians perform them. A fee-for-service healthcare system has been suggested to promote this practice. An alternative would be to tailor the screening interval to the age, sex, medical conditions and risk factors of each patient. This means choosing between wide varieties of tests.

Most surgeons ask patients about recent general medical examination results in order to proceed with surgery even though there are arguments for and against most screening interventions. Advantages include detection and subsequent prevention or early treatment of conditions such as high blood pressure, alcohol abuse, smoking, unhealthy diet, obesity and cancers. Moreover, they could improve the patient-physician relationship and decrease patient anxiety. More and more private insurance companies and even Medicare include annual physicals in their coverage. Some employers require mandatory health checkup before hiring a candidate even though it is now well known that some of the components of the prophylactic annual visit may actually cause harm. For example, lab tests and exams that are performed on healthy patients (as opposed to people with symptoms or known illnesses) are statistically more likely to be “false positives” - that is, when test results suggest a problem that doesn't exist. Disadvantages cited include the time and money that could be saved by targeted screening (health economics argument), increased anxiety over health risks (medicalization), over diagnosis, wrong diagnosis (for example Athletic heart syndrome misdiagnosed as

Hypertrophic cardiomyopathy) and harm, or even death, resulting from unnecessary testing to detect or confirm, often non-existent, medical problems or while performing routine procedures as a follow-up after screening [1].

Rehabilitation (rehab) is a process of care aimed at restoring or maximizing physical, mental, and social functioning. Can be used for:

- Acute reversible insults, eg sepsis
- Acute non-reversible or partially reversible insults, eg amputation, MI
- Chronic or progressive conditions, eg Parkinson's disease

Involves both restorations of function and adaptation to reduced function depending on how much reversibility there is in the pathology. Rehabilitation is an active process done by the patient not to him/her. It is hard work for the patient (akin to training for a marathon) - it is not 'convalescence' (akin to a holiday in the sun).

The "black box" of rehabilitation contains a selection of non-evidence-based, common sense interventions comprising:

- Positive attitude. Good rehabilitationalists are optimists - this is partly because they believe all should be given a chance and partly because they have seen very frail and disabled patients do well. A positive attitude from the team and other rehabilitating patients also improves the patient's expectations. Rehabilitation wards should harbour an enabling culture where the whole team encourages independence: patients dressed in their own clothes, with no catheter bags on show and eating meals at a table with other patients;

- MDT coordinated working: by sharing goals the team can ensure all team members are consistent in their approach;

- Functionally based treatment, eg the hemoglobin level only matters if it is making the patient breathless while walking to the toilet;

- Individualized holistic outcome goals: these incorporate social aspects which are often neglected. The team concentrates on handicap rather than impairments;

Impairment is a pathological defect in an organ or tissue, eg homonymous hemianopia due to posterior circulation stroke.

Disability is a restriction of function due to impairment, eg inability to drive due to visual defect[1].

Handicap is the social disadvantage caused by disability, eg unable to visit friends in neighboring village as unable to drive.

It can be seen that some impairments produce no disability or handicaps and some handicaps are due to multiple interacting impairments. The system allows

the social circumstances to be factored in, such as in the examples given, the disability produces no handicap if a regular bus route exists. Doctors are generally focused on impairments, poor at assessing disability, and rarely consider handicap.

Despite the attractive logic of such a classification, it is actually rarely used in clinical practice. The WHO issued a new classification of Functioning, Disability and Health in 1999 which is a little more complex but has a broadly similar structure (www.who.int/classifications/icf/en/index.html)[1].

Specialized rehabilitation wards are not the only place for rehab. If the considerations outlined are in place then successful rehabilitation can take place in:

- Acute wards
- Specialist wards (eg stroke units, orthopedic wards)
- Community hospitals
- Day hospitals
- Nursing and residential homes
- The patient's own home

These alternative sites often employ a roving rehabilitation team, which may be based in a hospital or the community.

The process of rehabilitation:

1. Selection of patients. Most hospitals do not have enough rehabilitation beds to cater for all patients who could benefit, so these beds are a valuable resource. This is often not understood by the patients, relatives, or referring service. Patient selection is a time-consuming, important, and complex task. Where there is no cost limit, the approach can be more inclusive[2].

In many ways the 'best' rehabilitation patient is one who has had an acute event from which they are recovering (eg., a fracture), who is motivated and cognitively intact - able to participate in therapy with enthusiasm and who has a clear goal in mind. There are rapid results and fast turnover to keep variety and interest for the team. However, consider whether this type of patient actually needs "hard core" inpatient rehabilitation, or in fact would get better in almost any supported setting with a bit of convalescent time (eg., intermediate care with nursing, guidance to improve stamina and confidence and perhaps a bit of social support on discharge).

Even patients with no recovery potential can benefit from aspects of the team's expertise, eg learning adaptation, teaching skills to carers or arranging complex discharge packages[1].

2. Initial assessment. This is not like a medical clerking; you need to get to know your patient on different levels (eg their mood, motivation, expectations, and complex social factors). Remember it is more meaningful to assess the handicap not just the impairment.

3. Goal setting. Aims and objectives of rehabilitation. It is essential that the MDT, ideally in conjunction with the patient, states what it plans to do and to achieve, in clear terms that are shared within the team and can be worked towards. A large part of this is achieved through the agreement and statement of targets at 2 hierarchical levels: aims and objectives[11].

Aims. Best set by the team, in discussion with the patient. One or two, patient-centered targets that encompass the broad thrust of the team's work - a team "mission statement" for that individual, eg:

- To achieve discharge home, with the support of spouse, at 6 weeks;
- To transfer easily with the assistance of one, thus allowing return to existing residential home place at 4 weeks.

Objectives. Best set by individual team members, in discussion with patient. More focused targets, usually several, that reflect specific disability and help focus the team's specific interventions, eg:

- To walk 10 m independently, with a single stick, at 3 weeks;
- To achieve night-time urinary continence at 4 weeks.

Both aims and objectives should have five characteristics, summarized by the acronym 'SMART':

- Specific, ie focused, unambiguous
- Manageable, ie amenable to the team's influence
- Achievable
- Realistic, acknowledging time and/or resource limitations. It is futile and demoralizing to set targets that cannot be achieved. Conversely, the team (and patient) should be 'stretched', ie the target should not be inevitably achievable
- Time-bounded. Specify when the target should be achieved. Many patients are motivated and cheered by the setting of a specific date (especially for discharge). Setting dates for specific functional achievements prompts further actions, eg ordering of equipment for the home[2].

4. Therapy:

- Medical - doctor led. Doctors are commonly part of hospital rehabilitation teams but may be missing from community rehabilitation teams where a nominated doctor (eg GP) can be consulted about specific issues.

When present, doctors often chair MDT meetings - this may be partly historical and partly because they are 'professional risk takers' who are more confident at coaxing a shared decision from a team, sometimes in very uncertain circumstances[1].

In a rehabilitation setting the doctor's main duties to the patient are:

- Selecting patients and maintaining a waiting list;
- Optimizing and stabilizing medical treatments (eg ensure adequate analgesia);
- Rationalizing drug therapy (eg stop night sedation);
- Anticipating and treating complications (eg pressure sores, Clostridium difficile -associated diarrhea, DVT);
- Diagnosing and treating depression;
- Identifying and managing comorbid conditions (eg incontinence, skin tumors);
- Initiating secondary prevention (eg aspirin for stroke, bisphosphonates following osteoporotic fractures, influenza vaccination);
- Organizing secondary referral to other specialists (eg dermatology, orthopedics).

Additional duties to the team include:

- Education;
- Team building;
- Context-setting - doctors often cross health sector boundaries whereas therapists and nurses can be fixed in teams or wards. They should share information about the patients on the waiting list and about those who do not reach the rehabilitation unit and why. This overview can help the team understand pressure on beds, etc.;

- Physical - mainly physiotherapy and nurse led. Mobility, balance, and stamina. Confidence is often a key issue;

- Self-care - mainly occupational therapy and nurse led;
- Environmental modification - aids and adaptations;
- Carer/relative training - it is too late to leave this until just prior to discharge.

5. Reassessment - usually at weekly MDT meetings. Goals are adjusted and new goals are set. Points 3, 4, and 5 are repeated in a cycle until the patient is ready for discharge[2].

6. Discharge planning should be started as soon as the patient is admitted but the efforts escalate towards the end of the inpatient period. A home visit and family meeting are often held to clarify issues.

7. Follow-up and maintenance. Post-discharge DVs, outpatients or DH attendance. Ideally done by the same team but in reality this function often taken over by community, in which case good communication is vital[1].

Measurement tools in rehabilitation. Principles. The most widely used standardized measurement instruments are structured questionnaires that deliver a quantitative (numerical) output. They vary in precision, simplicity, and applicability (to patient groups or clinical settings). For each domain of assessment several tools of differing size are usually available, reflecting tensions between brief assessments (speed, easy-to-use, well-tolerated) and a more prolonged evaluation (precision improved, give added layers of information).

Measurement tools are helpful at single points (especially entry and exit to a therapy program), and also in assessing progress and in guiding discussion around likely discharge destination[12].

Advantages:

- Quantify;
- Widely understood, and transferable across boundaries;
- Facilitates communication between professionals and settings of care;
- Provide a synopsis;
- May permit a less biased, more objective view of the patient;
- Facilitate a structured approach to assessment and clinical audit.

Disadvantages:

- May be time-consuming;
- Scores may conceal considerable complexity - patients scoring the same may be very different;
- Intra-individual, intra-rater and inter-rater variabilities mean that a score may change whilst a patient remains static, eg, 3 or 4 points change in the (20-point) Barthel is needed before a team can be absolutely confident that the patient has changed;
- There are many scales available, and some are not in general use, leading to confusion when staff or patients move between units.

Sanatorium. In Russia, Ukraine, and other former Soviet Union republics, the term sanatorium is generally used for a combination resort/recreational facility and a medical facility to provide short-term complex rest and medical services. It is similar to spa resorts with medical services [1].

On the other hand, for most Eastern Europeans including Russians, Ukrainians, Czechs, and other national cultures sanatorium mostly means a kind of hotel with health resort facilities and various available services (such as massage, pools, saunas, aromatherapy, oxygenotherapy, etc.) not covered by medical insurance.

Usually in this case a doctor's prescription is not required. However, a general practitioner is available and recommended for guests to check their health status in the beginning and at the end of their staying in a hotel[2].

TESTS FOR SELF-CONTROL

1. What are not task of the resort treatment:
 - A. The training of adaptation mechanisms
 - B. The restoration and amelioration of functions of bodies and systems
 - C. The treatment of diseases complication
 - D. The stimulation of regeneration and restitution

2. Which is the duration of resort treatment for patients with gastrointestinal diseases?
 - A. 24 days
 - B. 10 days
 - C. 2 months
 - D. 1 month

3. Which is the duration of resort treatment for patients after trauma or diseases of spinal cord?
 - A. 30 days
 - B. 45 days
 - C. 15 days
 - D. 3 months

4. What are not contraindications for resort treatment?
 - A. Psychiatrically diseases, drug dependency, alcoholism
 - B. Neoplasms
 - C. Blood diseases
 - D. Compensated chronic diseases

5. What is not type of climate-therapy?

- A. Aerotherapy
 - B. Thalassotherapy
 - C. Heliotherapy
 - D. Aquatherapy
6. What is used as a background of heliotherapy?
- A. Sun radiation
 - B. Air
 - C. Water
 - D. Therapeutic mud
7. What is used as a background aquatherapy:
- A. Sun radiation
 - B. Air
 - C. Mineral water
 - D. Therapeutic mud
8. The patient of 23 years old was appealed to the family doctor. She was pregnant, 18 weeks. She wanted to receive the resort treatment because of asthma. The pregnancy course was normal. Which will be the action of family doctor?
- A. The pregnancy is a contraindication for resort treatment
 - B. She can receive resort treatment
 - C. She can receive resort treatment after 26 weeks of pregnancy
 - D. She has to ask only gynecologist
9. The patient of 46 years old was appealed to the family doctor because of acute lymphoblastic leucosis. He wanted to receive the resort treatment. Which will be the action of family doctor?
- A. resort treatment is contraindicated
 - B. he can receive resort treatment after consultation of oncologist
 - C. he can receive treatment in the specialized sanatorium
 - D. he has to ask only oncologist
10. In which state the salts are in mineral water?
- A. Crystalloid
 - B. Soluble

- C. Suspension
 - D. ionized
11. What is the main aim of medical rehabilitation?
- A. To enhance and restore functional ability and quality of life
 - B. To prevent complications of most common diseases
 - C. To educate patient about their diseases
 - D. To improve the populational health.
12. Rehabilitation programs can be used for everything, except:
- A. Acute reversible insults, eg sepsis
 - B. Acute respiratory infections, eg influenza
 - C. Acute non-reversible or partially reversible insults, eg amputation, MI
 - D. Chronic or progressive conditions, eg Parkinson's disease.
13. Rehabilitation is an active process done by whom?
- A. By the treating doctor
 - B. By nurses
 - C. By the patient himself
 - D. By patient's family.
14. The process of rehabilitation includes everything, except:
- A. Selection of patients
 - B. Therapy
 - C. Follow-up and maintenance
 - D. Medical concilium.
15. Select the disadvantages of measurement tools in rehabilitation process.
- A. Scores may conceal considerable complexity - patients scoring the same may be very different
 - B. Widely understood, and transferable across boundaries
 - C. Facilitates communication between professionals and settings of care
 - D. Quantify.
16. The tasks of rehabilitation in patients with heart diseases are all listed, except for:
- A. Increase of compensatory possibilities of cardio-vascular system

- B. Expansion of the functional capacity of the respiratory system
- C.Improvement of the neuropsychic state
- D.Improving physical performance.

17. The main sanatorium medical institutions include all of the following, except:

- A. Sanatorium
- B. Balnearies
- C. Resort polyclinic
- D. Boarding house.

18. The need for sanatorium-resort treatment for the patient is determined by

- A. Head of the polyclinic department
- B. Chief Specialist
- C. Sanatorium selection commission
- D. Treating doctor.

19. The final decision to send a patient to a sanatorium in disputable cases takes

- A. Head of the polyclinic department
- B. Sanatorium selection commission
- C. Chief Specialist
- D. Therapist.

20. Sanatorium treatment can be recommended for all of the above categories, except:

- A. Persons with initial manifestations of long-lasting diseases
- B. People after the disease and injury
- C. Healthy people
- D. Patients with tuberculosis in specialized sanatoria.

1	2	3	4	5	6	7	8	9	10
C	A	B	D	D	A	A	D	A	A
11	12	13	14	15	16	17	18	19	20
A	B	C	D	A	B	C	D	B	C

TOPIC 4

FEATURES OF SOMATIC PATHOLOGY MANAGEMENT DURING PREGNANCY

I. Theme actuality. Dental care during pregnancy is extremely important. From keeping up with daily oral hygiene, to monitoring changes in young mouth, the more in-tune you are with your oral health the healthier your baby will be. Just as you have doctor visits for prenatal checkups, it's also important to visit your dentist for prenatal dental care. Your dentist can help discuss changes in oral health during pregnancy and what to look for. There is a connection between your health during pregnancy and your baby's health, so visiting your dentist during pregnancy is essential.

The most often complication of pregnancy are anemia, fetal hypothyroidism, ectopic pregnancy, toxemia, abortion, placental pathology, hemolytic diseases of fetus. The supervision after the pregnant help to avoid the complications.

II. Study purposes: to manage the pathological condition of pregnant in out-patient setting.

III. The practical skills: to classify the risk factors of diseases, to know the management algorithm of expecting mothers.

IV. The basic terms and notions, which have to be known by students:

Extragenital pathology – the diseases which onset before pregnancy. The chronic pathology in the period of pregnancy need extend medical examination, the correction of medication doses.

Acquired heart diseases are conditions affecting the heart and its associated blood vessels that develop during a person's lifetime, in contrast to congenital heart diseases, which are present at birth. Acquired heart diseases include coronary artery disease, coronary heart disease, rheumatic heart disease, diseases of the pulmonary vessels and the aorta, diseases of the tissues of the heart, and diseases of the heart valves.

Congenital heart disease is one of the important types of diseases affecting the cardiovascular system, with an incidence of about 8 per 1000 live births. In most patients the causes appear to fit in the middle of a continuum from primarily genetic to primarily environmental. The heart's complicated evolution during embryological development presents the opportunity for many different types of congenital defects to occur.

Gestational diabetes is a condition in which a woman without diabetes develops high blood sugar levels during pregnancy. Gestational diabetes generally results in few symptoms; however, it does increase the risk of pre-eclampsia, depression, and requiring a Caesarean section. Babies born to mothers with poorly treated gestational diabetes are at increased risk of being too large, having low blood sugar after birth, and jaundice. If untreated, it can also result in a stillbirth. Long term, children are at higher risk of being overweight and developing type 2 diabetes.

Hypertensive disorders are the most common medical disorders of pregnancy and are associated with adverse maternal and perinatal outcomes. When considering pregnancy, women with pre-existing chronic hypertension should be screened for target organ damage, especially renal dysfunction. Since blood pressure usually decreases until midpregnancy and returns to, or exceeds, prepregnancy values in the third trimester, antihypertensive treatment can sometimes be withdrawn in low-risk women, and reintroduced if needed. Recommended antihypertensive drugs are labetalol, methyldopa and nifedipine

V. The content of theme

During pregnancy, the changing hormone levels can leave your mouth more vulnerable to bacteria and plaque, both of which create tender gums during pregnancy. This can put you at greater risk for tooth decay and gum disease [2].

Here are a few dental issues to monitor during pregnancy:

- Gum inflammation is more likely to occur during the second trimester. Your gums may be swollen, tender, and may bleed a little during brushing and flossing.
- Plaque buildup during pregnancy is common, but brushing and flossing regularly can help. Your body may not fight off plaque as easily when you're pregnant, which can lead to tooth decay and gingivitis. You can also ask your dentist about an antimicrobial mouthwash to help keep plaque away. A dental hygienist will also remove plaque buildup during your regularly-scheduled dental appointment[2].
- Although pregnancy does not cause periodontal disease, pregnancy can exacerbate this condition, which can result from untreated gingivitis.
- Pregnancy tumors are overgrowths of tissue appear that on the gums, most often during the second trimester. They are non-cancerous growths believed to be

related to excess plaque. They may bleed easily and will usually disappear after the baby is born.

Here are daily dental hygiene some tips to keep in mind while you're pregnant:

- Brush your teeth at least twice a day with fluoride toothpaste. If your gums are swollen and tender due to pregnancy gingivitis, try switching to an extra soft toothbrush and brush as gently as possible. After all, it's the brushing motions that clean teeth—not the pressure of the toothbrush.

- Floss gently once a day. Swollen and tender gums during pregnancy are normal, but see your dentist if you have concerns.

- Visit your dentist regularly for a professional cleaning and check-up.

- Ask your dentist about an antimicrobial mouth rinse to help combat the increase of plaque[2].

- If you have morning sickness and vomiting, rinse your mouth with a teaspoon of baking soda mixed with water. This will help keep stomach acids from attacking your teeth and causing decay.

- Eat a diet rich with calcium, B12 and vitamin C to help keep gums healthy.

Eating right during pregnancy will help keep you and your baby healthy. Your baby's teeth begin to develop between the third and sixth month of pregnancy, so making smart food choices while you're pregnant can have an impact on your baby's developing teeth.

- Eat a variety of healthy foods, including fruits, vegetables, whole-grain products and dairy products like milk, cheese, cottage cheese and unsweetened yogurt

- Limit high-sugar foods such as candy and cookies, and avoid drinks high in sugar like fruit juice or soda[2].

- Drink plenty of water, especially between meals and snacks

- ✓ Pregnancy Complications in Older Mothers. In recent years there has been a trend toward having babies later in life. But more pronounced chronic diseases in the mother, among other conditions, can have an adverse affect on the developing fetus.

- ✓ Pregnancy Complications in Teenage Mothers. Most teenagers are not ready - physically or emotionally - to have children. As a result, birth weight

is typically lower and babies of teens are more susceptible to certain illnesses. It will take an effort on the part of the teenage mom to ensure the health of her baby.

✓ **Preterm Birth.** About 11 to 12% of deliveries in the US are classified as premature, which is a birth that occurs between the 20th and 36th weeks of pregnancy. This is a dangerous condition for the baby, which might not be able to survive outside of the womb. But modern medicine has helped many premature babies survive and grow up normally[2].

✓ **Postterm Birth.** If a baby still has not arrived two weeks past its due date, it may be in danger of malnutrition or even pneumonia. There is no danger to the mother, but a doctor may choose to induce labor for the baby's health.

✓ **Ectopic Pregnancy.** An ectopic pregnancy is one in which the fertilized egg settles outside the uterus. This can be a very painful, and dangerous, condition for the mother, and if an ectopic pregnancy is detected the mother will be hospitalized immediately.

✓ **Stillbirths,** the death of a baby before it is born, is becoming rare thanks to improved prenatal care. However, this tragic outcome of a pregnancy can happen, usually when the flow of nutrition from the placenta is cut off.

✓ **Miscarriages.** About 15% of known births end in miscarriage, when a baby is born too early in the pregnancy to be viable. Although many doctors prescribe bed rest if they suspect a miscarriage is possible, most believe there is no way to prevent one [2].

✓ **Multiple Births.** Twins can double the joy of being a new mother, but they can also present health risks. The most common risk of a multiple birth is premature labor, and a breech birth - with the baby coming out feet first rather than head first- is common as well. Although the reasons for multiple births are not fully understood.

✓ **Placenta Complications.** A woman shouldn't experience any vaginal bleeding during pregnancy. If you do, it may be a sign of placenta previa or placental abruption. These are two conditions in which the placenta does not behave normally, and they almost always lead to a cesarean section.

✓ **Cesarean Section.** About 30% of US babies are born via cesarean section, in which a baby is removed through an incision in the mother's abdomen. There are many reasons why this procedure would be necessary, but it's always for the health of the baby or the mother and it's extremely safe.

✓ **Birth Defects.** Birth defects can affect the head, face, eyes, mouth, hands, feet, and internal organs. Some minor birth defects can be corrected and leave no trace, but others are more severe and stay with the baby for life: numerous birth defects, from cleft palate and clubfoot to spina bifida and Down syndrome [2].

✓ **Rh Incompatibility.** If a mother and fetus don't have compatible blood, there can be severe complications for the fetus. Furthermore, any fetus the mother carries in the future is at risk, too, unless a doctor takes the proper steps to sensitize the mother.

✓ **Diseases During Pregnancy.** The baby isn't the only one who's at risk. Pregnancy can cause health issues for the mother too, from simple swelling of the hands and feet to increased risk of heart and kidney disease. And existing conditions in the mother, such as diabetes, can endanger a fetus. Most mothers are healthy throughout their pregnancy.

✓ **Abnormalities of Labor.** Labor is a complicated process that can become difficult in several ways. If the baby and the umbilical cord are not positioned correctly, for example, the doctor may have to perform a cesarean section [15].

Diseases During Pregnancy

Heart Disease. Although the incidence of heart disease among women in their childbearing years has declined dramatically in recent years, it still remains one of the major causes of death in pregnant women. Most women with known heart disease withstand pregnancy without any problems. However, in some cases in which the heart muscle or valves are seriously diseased, the added strain normally placed on the heart during pregnancy may lead to heart failure and even death. For this reason, any woman who knows that she has a heart problem should check with her doctor before attempting to become pregnant [11].

Kidney Disease. The most common disease of the kidneys during pregnancy is pyelonephritis, a bacterial infection of the kidney. This can occur when an infection of the bladder allows bacteria to travel up to the kidneys. Symptoms

include fever, severe low back pain, and chills. It is important to treat pyelonephritis quickly because it may cause a pregnant woman to go into premature labor. All instances of severe low back pain and fever should be reported to the doctor immediately.

Women who have severe kidney disease before pregnancy can have many serious problems during pregnancy. Extremely high blood pressure and kidney failure (inability to produce urine) are life-threatening complications for both the mother and the fetus. Some women with severe kidney disease may be advised not to become pregnant [12].

Diabetes. Before the discovery of insulin for the treatment of diabetes, women with diabetes who became pregnant either miscarried or the pregnancy resulted in the death of the mother and baby. Today, a diabetic woman can expect to deliver a healthy, normal baby.

Even though medical care of the diabetic woman has improved greatly in the last decade, a variety of serious problems may be associated with pregnancy, including an increased chance of preeclampsia, stillbirth, and abnormally small babies.

For these reasons, it is important for a diabetic woman to achieve excellent glucose control prior to conception to decrease her risks for complications associated with pregnancy. Once pregnant, the diabetic woman should expect more frequent prenatal office visits and more laboratory testing. It is important for her to maintain a strict diet, exercise appropriately, and take her insulin at all the prescribed times.

Another form of diabetes - called gestational, or pregnancy-induced, diabetes -- affects women only during pregnancy. In this disorder, women who were not diabetic before pregnancy display signs of diabetes only when they are pregnant [11].

During routine prenatal office visits, the pregnant woman's urine is always tested for the presence of sugar, or glucose (urine should normally contain no glucose). If sugar appears in the urine, the doctor performs a blood test to see if the woman's blood sugar level is abnormally high. In addition, most physicians now routinely perform a blood test called a glucose challenge test at 24 to 28 weeks of pregnancy, even if urine tests have been normal. If the results show elevated levels, a more complex test is done to confirm the diagnosis.

Women with pregnancy-induced diabetes are generally treated with a special diet that restricts their intake of sugar and carbohydrates. Insulin is sometimes necessary to bring the blood sugar level down to normal [13].

Since women with pregnancy-induced diabetes also are at a greater risk for pre-eclampsia and stillbirth, they can expect to have more frequent prenatal visits. These women are also at risk of having macrosomic, or very large, babies. About 30-40% of women who develop gestational diabetes go on to develop nongestational diabetes several years after pregnancy. Postpartum weight control can help reduce this risk.

Digestive System Problems.The most common digestive system problem affecting pregnant women is hyperemesis gravidarum. In this condition, the woman suffers excessive or abnormal vomiting. This vomiting is more severe than that caused by normal "morning sickness," which usually clears up on its own within a few months. In hyperemesis gravidarum, the vomiting leads to starvation, loss of water in the body, and an imbalance in bodily fluids.

Symptoms include weight loss and dehydration. The condition is most often treated in the hospital through the use of antivomiting drugs and intravenous feeding. A pregnant woman should not attempt to treat herself with drugs for vomiting without first consulting her doctor [11].

Lung Diseaseis uncommon in pregnant women with the exception of occasional bouts of cough and congestion associated with the flu or a cold. The most serious lung disease to affect a pregnant woman is asthma. In women who have only mild asthma attacks before pregnancy, their asthma may stay the same, improve, or worsen. In women with severe asthma before pregnancy, symptoms usually worsen during pregnancy. Women with severe asthma are also more likely to have premature labor and small babies. Before a woman with severe asthma attempts to become pregnant, she should consult her doctor.

Liver Disease.Fatty liver disease and HELLP syndrome, both of which affect the liver, are rare. Fatty liver disease is generally associated with preeclampsia and occurs in the third trimester of pregnancy. The cause is unknown, but symptoms include nausea, vomiting, abdominal pain, and jaundice. Liver failure may result. HELLP syndrome (which is named after its characteristics: Hemolysis, a breakdown of red blood cells; Elevated Liver enzymes; and a Low Platelet count) is a severe form of preeclampsia and is, in

part, characterized by liver inflammation. If a woman knows she has liver disease, she should check with her doctor before attempting to become pregnant.

Nervous System Disease.The most common nervous system problem in a pregnant woman is headache, generally caused by tension, migraine, or an infection of the sinuses or throat. Simple measures, such as lying down in a quiet room and applying ice packs over the forehead, relieve most simple headaches. However, since a headache may be a symptom of high blood pressure associated with preeclampsia, all severe or persistent headaches should be reported to the doctor immediately [2].

Numbness and tingling of the fingers, thighs, and toes are quite common in pregnancy and usually result from retention of water and swelling.

Epilepsy is the most serious nervous system problem that can affect a pregnant woman. About half of women with epilepsy experience worsening of symptoms during pregnancy. Furthermore, certain drugs commonly used to treat epilepsy may cause birth defects in the baby. Before a woman with epilepsy attempts to become pregnant, she should check with her doctor.

Skin Disease.Several types of skin changes are common in pregnant women and result from the normal hormonal changes of pregnancy. Darkening of the skin is common, especially on the face, abdomen, vulva, thighs, and around the nipples. As pregnancy progresses, the palms of the hands often become red, and small spider veins may develop on the arms and face. Stretch marks on the skin of the lower part of the abdomen usually develop late in pregnancy.

Several types of skin diseases occur only in pregnancy. These appear as numerous small, raised bumps that are usually extremely itchy. Though these conditions are rarely serious, report any unusual skin changes or itching to your doctor [12].

Critical stages:

- a) in case of cardiovascular diseases, 28-32 weeks: maximal hemodynamic loading, on the pulmonary functions;
- b) in case of arterial hypertension, 22-26 weeks: often severe gestosis, hypertensive crisis, fetal development disturbance;
- c) in case of liver and kidney diseases, 22-26 weeks: maximal loading on the liver and kidney, their dysfunction, late gestosis;

d) in case of diabetes mellitus and endocrinological diseases, 23-24 weeks: correction of insulin dose, decompensation of diseases, fetal disorder[2].

Cardiovascular disease and pregnancy

At present, 0.2–4% of all pregnancies in western industrialized countries are complicated by cardiovascular diseases (CVD),¹ and the number of the patients who develop cardiac problems during pregnancy is increasing.

the risk of CVD in pregnancy has increased due to increasing age at first pregnancy and increasing prevalence of cardiovascular risk factors—diabetes, hypertension, and obesity.

- 1) Hypertensive disorders are the most frequent cardiovascular events during pregnancy, occurring in 6–8% of all pregnancies.
- 2) Congenital heart disease is the most frequent cardiovascular disease present during pregnancy (75–82%), with shunt lesions predominating (20–65%).
- 3) Rheumatic valvular disease dominates in non-western countries (56–89%)
- 4) Cardiomyopathies are rare, but represent severe causes of cardiovascular complications in pregnancy. Peripartum cardiomyopathy (PPCM) is the most common cause of severe complications [11].

Pregnancy induces changes in the cardiovascular system to meet the increased metabolic demands of the mother and fetus. They include increases in blood volume and cardiac output (CO), and reductions in systemic vascular resistance and blood pressure (BP). Plasma volume reaches a maximum of 40% above baseline at 24 weeks gestation. A 30–50% increase in CO occurs in normal pregnancy. In early pregnancy increased CO is primarily related to the rise in stroke volume; however, in late pregnancy, heart rate is the major factor. Heart rate starts to rise at 20 weeks and increases until 32 weeks. It remains high 2–5 days after delivery. Systemic BP (SBP) typically falls early in gestation and diastolic BP (DBP) is usually 10 mmHg below baseline in the second trimester. This decrease in BP is caused by active vasodilatation, achieved through the action of local mediators such as prostacyclin and nitric oxide. In the third trimester, the DBP gradually increases and may normalize to non-pregnant values by term. The heart can increase its size by up to 30%, which is partially due to dilatation[16].

Pregnancy induces a series of haemostatic changes, with an increase in concentration of coagulation factors, fibrinogen, and platelet adhesiveness, as well

as diminished fibrinolysis, which lead to hypercoagulability and an increased risk of thrombo-embolic events.

Maternal glucose homeostasis may change and cholesterol levels increase in adaptation to fetal–maternal needs. Physiological changes that occur during pregnancy can affect absorption, excretion, and bioavailability of all drugs[2].

Cardiac anatomy and function, arterial and venous flow, and rhythm should be evaluated. When a fetal cardiac anomaly is suspected, it is mandatory to obtain the following:

- 1) A full fetal echocardiography to evaluate cardiac structure and function, arterial and venous flow, and rhythm.
- 2) Detailed scanning of the fetal anatomy to look for associated anomalies (particularly the digits and bones).
- 3) Family history to search for familial syndromes.
- 4) Maternal medical history to identify chronic medical disorders, viral illnesses, or teratogenic medications.
- 5) Fetal karyotype (with screening for deletion in 22q11.2 when conotruncal anomalies are present).
- 6) Referral to a maternal–fetal medicine specialist, paediatric cardiologist, geneticist, and/or neonatologist to discuss prognosis, obstetric, and neonatal management, and options[2].
- 7) Delivery at an institution that can provide neonatal cardiac care, if needed.

Timing of delivery Spontaneous onset of labour is appropriate for women with normal cardiac function and is preferable to induced labour for the majority of women with heart disease. Timing is individualized, according to the gravida’s cardiac status, Bishop score (a score based upon the station of the presenting part and four characteristics of the cervix: dilatation, effacement, consistency, and position), fetal well-being, and lung maturity. Due to a lack of prospective data and the influence of individual patient characteristics, standard guidelines do not exist, and management should therefore be individualized. In women with mild unrepaired congenital heart disease and in those who have undergone successful cardiac surgical repair with minimal residua, the management of labour and delivery is the same as for normal pregnant women[2].

The risk of pregnancy depends on the specific heart disease and clinical status of the patient. Individual counselling by experts is recommended.

Modified WHO classification of maternal cardiovascular risk: application. Conditions in which pregnancy risk is WHO I (No detectable increased risk of maternal mortality and no/mild increase in morbidity):

- Uncomplicated, small or mild: pulmonary stenosis, patent ductus arteriosus, mitral valve prolapse
- Successfully repaired simple lesions (atrial or ventricular septal defect, patent ductus arteriosus, anomalous pulmonary venous drainage)[11].
- Atrial or ventricular ectopic beats, isolated

Conditions in which pregnancy risk is WHO II or III

WHO II (Small increased risk of maternal mortality or moderate increase in morbidity):

- Unoperated atrial or ventricular septal defect
- Repaired tetralogy of Fallot
- Most arrhythmias

WHO II–III (depending on individual):

- Mild left ventricular impairment
- Hypertrophic cardiomyopathy
- Native or tissue valvular heart disease not considered WHO I or IV
- Marfan syndrome without aortic dilatation
- Aorta 45 mm
- Aortic dilatation >50 mm in aortic disease associated with bicuspid aortic valve
- Native severe coarctation[2].

WHO III (Significantly increased risk of maternal mortality or severe morbidity. Expert counselling required. If pregnancy is decided upon, intensive specialist cardiac and obstetric monitoring needed throughout pregnancy, childbirth, and the puerperium):

- Mechanical valve
- Systemic right ventricle
- Fontan circulation
- Cyanotic heart disease (unrepaired)
- Other complex congenital heart disease
- Aortic dilatation 40–45 mm in Marfan syndrome
- Aortic dilatation 45–50 mm in aortic disease associated with bicuspid aortic valve

Conditions in which pregnancy risk is WHO IV (Extremely high risk of maternal mortality or severe morbidity; pregnancy contraindicated. If pregnancy occurs termination should be discussed. If pregnancy continues, care as for class III):

- Pulmonary arterial hypertension of any cause •
- Severe systemic ventricular dysfunction (LVEF 45 mm)
- Aortic dilatation >50 mm in aortic disease associated with bicuspid aortic valve
- Native severe coarctation[11].

Hypertensive disorders

Basic laboratory investigations recommended for monitoring pregnant patients with hypertension include urinalysis, blood count, haematocrit, liver enzymes, serum creatinine, and serum uric acid. Proteinuria should be standardized in 24 h urine collection (if >2 g/day, close monitoring is warranted; if >3 g/day, delivery should be considered). Ultrasound investigation of the adrenals and urine metanephrine and normetanephrine assays may be considered in pregnant women with hypertension to exclude pheochromocytoma which may be asymptomatic and, if not diagnosed before labour, fatal. Doppler ultrasound of uterine arteries, performed during the second trimester (>16 weeks), is useful to detect uteroplacental hypoperfusion, which is associated with a higher risk of pre-eclampsia and intrauterine growth retardation, in both high risk and low risk women.

Hypertension in pregnancy is not a single entity but comprises:

- pre-existing hypertension;
- gestational hypertension;
- pre-existing hypertension plus superimposed gestational hypertension with proteinuria;
- antenatally unclassifiable hypertension[19].

The majority of women with pre-existing hypertension in pregnancy have mild to moderate hypertension (140–160/90–109 mmHg), and are at low risk for cardiovascular complications within the short time frame of pregnancy. Women with essential hypertension and normal renal function have good maternal and neonatal outcomes and are candidates for non-drug therapy because there is no evidence that pharmacological treatment results in improved neonatal outcome. Some women with treated pre-existing hypertension are able to stop their medication in the first half of pregnancy because of the physiological fall in BP

during this period. However, close monitoring and, if necessary, resumption of treatment is necessary.

A short-term hospital stay may be required for confirming the diagnosis of and ruling out severe gestational hypertension (pre-eclampsia), in which the only effective treatment is delivery. A normal diet without salt restriction is advised, particularly close to delivery, as salt restriction may induce low intravascular volume. Calcium supplementation of at least 1 g daily during pregnancy almost halved the risk of pre-eclampsia without causing any harm[2].

Fish oil supplementation as well as vitamin and nutrient supplements have no role in the prevention of hypertensive disorders. Low dose acetylsalicylic acid (75–100 mg/day) is used prophylactically in women with a history of early-onset (>28 weeks) pre-eclampsia. It should be administered at bedtime, starting pre-pregnancy or from diagnosis of pregnancy, but before 16 weeks gestation, and should be continued until delivery. Weight reduction is not recommended during pregnancy in obese women, because it can lead to reduced neonatal weight and slower subsequent growth in infants of dieting obese mothers.

Women with pre-existing hypertension may continue their current medication except for ACE inhibitors, ARBs, and direct renin inhibitors, which are strictly contraindicated in pregnancy because of severe fetotoxicity, particularly in the second and third trimesters.

α -Methyldopa is the drug of choice for long-term treatment of hypertension during pregnancy. The α -/ β -blocker labetalol has efficacy comparable with methyldopa. If there is severe hypertension it can be given i.v. Metoprolol is also recommended. Calcium channel blockers such as nifedipine (oral) or isradipine (i.v.) are drugs of second choice for hypertension treatment. These drugs can be administered in hypertensive emergencies or in hypertension caused by pre-eclampsia. Potential synergism with magnesium sulfate may induce maternal hypotension and fetal hypoxia. Urapidil can also be selected for hypertensive emergencies. Magnesium sulfate i.v. is the drug of choice for treatment of seizures and prevention of eclampsia. Diuretics should be avoided for treatment of hypertension because they may decrease blood flow in the placenta. They are not recommended in pre-eclampsia[19].

Induction of delivery is indicated in gestational hypertension with proteinuria with adverse conditions such as visual disturbances, coagulation abnormalities, or fetal distress[2].

Specific congenital heart defects:

- Atrial septal defect - Pregnancy is well tolerated by most women; follow-up twice during pregnancy is sufficient; spontaneous vaginal delivery is in most cases appropriate
- ventricular septal defects - follow-up twice during pregnancy is sufficient and spontaneous vaginal delivery is appropriate
- Atrioventricular septal defect - After correction, pregnancy is usually well tolerated when residual valve regurgitation is not severe and ventricular function is normal; follow-up during pregnancy is advisable at least once each trimester; clinical and echocardiographic follow-up is indicated monthly or bimonthly in patients with moderate or severe valve regurgitation or impaired ventricular function.
- Coarctation of the aorta - Pregnancy is often well tolerated in women after repair of coarctation of the aorta; close surveillance of BP is warranted, and regular follow-up at least every trimester is indicated; spontaneous vaginal delivery is preferred with use of epidural anaesthesia particularly in hypertensive patients;
- Pulmonary valve stenosis is generally well tolerated during pregnancy; mild and moderate stenosis are regarded low-risk lesions, and follow-up once every trimester is sufficient
- Aortic stenosis - all women with a bicuspid aortic valve should undergo imaging of the ascending aorta before pregnancy, and surgery should be considered when the aortic diameter is >50 mm.
- Tetralogy of Fallot - surgical repair is indicated before pregnancy; follow-up every trimester is sufficient in the majority of women; in women with severe pulmonary regurgitation, monthly or bimonthly cardiac evaluation with echocardiography is indicated [20].
- Transposition of the great arteries - though many women tolerate pregnancy relatively well, after an atrial switch operation patients have an increased risk of developing complications such as arrhythmias (sometimes life-threatening), and

heart failure; e monthly or bimonthly cardiac and echocardiographic surveillance of symptoms, systemic RV function, and heart rhythm [2].

Pulmonary Disease and Pregnancy

Hormonal changes in pregnancy affect the upper respiratory tract and airway mucosa, producing hyperemia, mucosal edema, hypersecretion, and increased mucosal friability. Estrogen is probably responsible for producing tissue edema, capillary congestion, and hyperplasia of mucous glands.

The enlarging uterus and the hormonal effects produce anatomical changes to the thoracic cage. As the uterus expands, the diaphragm is displaced cephalad by as much as 4 cm; the anteroposterior and transverse diameter of the thorax increases, which enlarges chest wall circumference. Diaphragm function remains normal, and diaphragmatic excursion is not reduced

Anatomical changes to the thorax produce a progressive decrease in functional residual capacity, which is reduced 10-20% by term. The residual volume can decrease slightly during pregnancy. The minute ventilation increases significantly, beginning in the first trimester and reaching 20-40% above baseline at term [21].

Use of pulmonary medications in pregnancy

Methylxanthines: Both theophylline and aminophylline readily cross the placenta, but no fetal ill effects or malformations have been reported. Theophylline pharmacokinetics are unaffected by pregnancy, and this drug also appears in breast milk.

Beta-agonists: These have little systemic absorption and a more potent bronchodilatory effect via inhalation. Data on the use of inhaled beta-agonists showed no difference in perinatal mortality, congenital malformations, birth weight, or Apgar scores.

Corticosteroids: The use of corticosteroids during pregnancy continues to be controversial, although numerous reports confirm their use without adverse fetal effects. No congenital malformations or adverse fetal effects were found from inhaled corticosteroids. Prednisone has been used extensively during pregnancy for a variety of conditions. It is associated with an increased incidence of cleft palates in animals but not in humans.

Ipratropium and bromide: Neither has been associated with adverse fetal outcomes [2].

Antihistamines and decongestants: Patients frequently request these medications for nasal symptoms, mucosal edema, and hyperemia that accompany normal pregnancy. The available data does not indicate safety of antihistamines in pregnancy. Brompheniramine is associated with congenital malformations.

Common antibiotics used for respiratory infections: The major antibiotics considered safe during pregnancy are penicillin, cephalosporins, and erythromycin. Although penicillin and ampicillin readily cross the placenta, no adverse effects to the fetus are reported. Cephalosporins also traverse the placenta to a moderate degree, but no adverse fetal effects occur. Erythromycin crosses the placenta to a low degree but achieves high levels in breast milk. The estolate formulation is contraindicated due to potential hepatic toxicity in the mother.

Antibiotics that have relative contraindications include sulfonamides, trimethoprim, aminoglycosides, nitrofurantoin, antituberculosis drugs, tetracyclines, and quinolones [22].

Teratogens used in pulmonary disease: iodine-containing compounds, brompheniramine, antihistamine, coumarin, and anticoagulants cause various teratogenic effects. Ciprofloxacin, sulfonamides, tetracyclines, chloramphenicol, streptomycin, and rifampin have been associated with various effects. Ionizing radiation exposure to the fetus is associated with growth retardation, CNS effects, microcephaly, and eye malformations.

Asthma is one of the most common coexisting medical conditions affecting reproductive-aged woman. The course of asthma during pregnancy is variable; one third of patients improve, one third remain stable, and one third worsen. In patients with symptomatic asthma, gestational weeks 24-36 tend to be the most difficult. Only 10% of women experience asthma exacerbation during labor and delivery, and the severity tends to revert to that of pregnancy by 3 months' postpartum. Asthma is generally expected to follow a similar course during successive pregnancies [17].

In outpatient asthma management, beta-2 agonists are used for symptomatic benefit. Inhaled corticosteroids remain the mainstay of therapy for asthma control. Initiate treatment with the lowest possible dose of inhaled steroids; the dose can be increased further as required by symptomatic and objective asthma assessment.

Long-acting adrenergic agonists, such as salmeterol or formoterol, might be used in symptomatic patients on adequate corticosteroid therapy. The leukotriene

antagonists are the newest agents available for asthma management. Their exact role in the treatment of asthma during pregnancy is unclear.

Asthma can have a number of deleterious effects on pregnancy outcome. An increased incidence of preterm births, low birth weight, and increased prenatal mortality largely related to poor asthma control has been reported. Physicians and patients should not inappropriately avoid the use of effective pharmacologic therapy because of concerns for fetal effects of drugs [22].

Asthma management with beta 2-agonists and/or inhaled corticosteroids during pregnancy did not impair fetal growth.

Urogenital diseases and pregnancy:

- Pyelonephritis– 2% during the first trimester, 52% during the second trimester, and 46% in the third trimester;
- Glomerulonephritis – 0,1-0,2 %;
- Urinary stone disease – 0,1-0,35 %.

Pregnancy causes numerous changes in the woman's body that increase the likelihood of urinary tract infections (UTIs). Hormonal and mechanical changes can promote urinary stasis and vesicoureteral reflux. These changes, along with an already short urethra (approximately 3-4 cm in females) and difficulty with hygiene due to a distended pregnant belly, help make UTIs among the most common bacterial infections during pregnancy.

UTIs during pregnancy are associated with risks to both the fetus and the mother, including pyelonephritis, preterm birth, low birth weight, and increased perinatal mortality. In general, pregnant patients are considered immunocompromised UTI hosts because of the physiologic changes associated with pregnancy. These changes increase the risk of serious infectious complications from symptomatic and asymptomatic urinary infections even in healthy pregnant women[11].

Treatment of bacteriuria and cystitis

Because of the dangers of maternal and fetal complications, acute care (eg, in the emergency department [ED]) should focus on identifying and treating asymptomatic and symptomatic bacteriuria, along with ensuring that an alternate process is not the cause of the symptoms.

Treatment of asymptomatic bacteriuria in pregnant patients is important because of the increased risk of urinary tract infection (UTI) and its associated sequelae. ED care may involve the following:

- Administration of appropriate antibiotics
- Administration of fluid if the patient is dehydrated
- Admission if any indication of complicated UTI exists[2].

Behavioral methods: Any discussion of treatment should be prefaced with a discussion of behavioral methods that may be used to ensure good hygiene and reduce bacterial contamination of the urethral meatus, thereby preventing inadequate treatment and recurrent infection. Behavioral methods include the following:

- Avoid baths
- Wipe front-to-back after urinating or defecating
- Wash hands before using the toilet
- Use washcloths to clean the perineum
- Use liquid soap to prevent colonization from bar soap
- Clean the urethral meatus first when bathing

Antibiotic therapy. Oral antibiotics are the treatment of choice for asymptomatic bacteriuria and cystitis. Appropriate oral regimens include the following:

- Cephalexin 500 mg 4 times daily
- Ampicillin 500 mg 4 times daily
- Nitrofurantoin 100 mg twice daily
- Sulfisoxazole 1 g 4 times daily[23].

The standard course of treatment for pyelonephritis consists of hospital admission and intravenous (IV) administration of cephalosporins or gentamicin. IV fluids must be administered with caution. Patients with pyelonephritis can become dehydrated because of nausea and vomiting and need IV hydration. However, they are at high risk for the development of pulmonary edema and acute respiratory distress syndrome.

Fever should be managed with antipyretics (preferably, acetaminophen) and nausea and vomiting with antiemetics.

Preterm labor and delivery are additional risks associated with pyelonephritis[11].

Some antibiotics should not be used during pregnancy, because of their effects on the fetus. These include the following:

- Tetracyclines (adverse effects on fetal teeth and bones and congenital defects)
- Trimethoprim in the first trimester (facial defects and cardiac abnormalities)
- Chloramphenicol (gray syndrome)
- Sulfonamides in the third trimester (hemolytic anemia in mothers with glucose-6-phosphate dehydrogenase [G6PD] deficiency, jaundice, and kernicterus)[2].

Nitrofurantoin is safe and effective; however, poor tissue penetration has limited its use in pyelonephritis. In the past, nitrofurantoin was completely avoided in the third trimester because of hemolytic effects on the newborn. Currently, restriction of this agent is limited to the last several weeks of pregnancy. Use during this period can cause hemolytic anemia in the fetus or neonate as a consequence of their immature erythrocyte enzyme systems (glutathione instability). Nitrofurantoin is also safe and effective for once-daily prophylactic therapy during pregnancy.

Macrolides are not first-line agents for UTI in pregnancy. However, they are well tolerated by mother and fetus. A meta-analysis concluded that although antibiotic treatment is effective in patients with UTIs, the data are insufficient to recommend any specific regimen for treatment of symptomatic UTIs during pregnancy. All of the antibiotics studied were effective in terms of both increasing cure rates of UTI in pregnancy and decreasing the incidence of associated adverse outcomes [18].

Treatment Regimens for Pregnant Women with UTI:

- Nitrofurantoin monohydrate/macrocrystals 100 mg orally twice daily for 5-7 days *or*
- Amoxicillin 500 mg orally twice daily (alternative: 250 mg orally three times daily) for 5-7 days *or*
- Amoxicillin-clavulanate 500/125 mg orally twice daily for 3-7 days (alternative: 250/125 mg orally three times daily for 5-7 days) *or*
- Cephalexin 500 mg orally twice daily for 3-7 days

ENDOCRINOLOGICAL DISEASES AND PREGNANCY

Gestational diabetes mellitus (GDM) is defined as glucose intolerance of variable degree with onset or first recognition during pregnancy[2].

Infants of mothers with preexisting diabetes mellitus experience double the risk of serious injury at birth, triple the likelihood of cesarean delivery, and quadruple the incidence of newborn intensive care unit admission.

GDM accounts for 90% of cases of diabetes mellitus in pregnancy, while preexisting type 2 diabetes accounts for 8% of such cases.

The following 2-step screening system for gestational diabetes:

- 50-g, 1-hour glucose challenge test (GCT)
- 100-g, 3-hour oral glucose tolerance test (OGTT) - For patients with an abnormal GCT result[2].

Alternatively, for high-risk women or in areas in which the prevalence of insulin resistance is 5% or higher, a 1-step approach can be used by proceeding directly to the 100-g, 3-hour OGTT.

It is recommended screening for GDM after 24 weeks of pregnancy for asymptomatic women with no previous diagnosis of type 1 or type 2 diabetes mellitus.

Women with prediabetes identified before pregnancy should be considered at extremely high risk for developing GDM during pregnancy. As such, they should receive early (first-trimester) diabetic screening[17].

Postdiagnostic testing

Once the diagnosis of diabetes is established in a pregnant woman, continued testing for glycemic control and diabetic complications is indicated for the remainder of the pregnancy.

First-trimester laboratory studies

- HbA1C
- Blood urea nitrogen (BUN)
- Serum creatinine
- Thyroid-stimulating hormone
- Free thyroxine levels
- Spot urine protein-to-creatinine ratio
- Capillary blood sugar levels

Second-trimester laboratory studies

- Spot urine protein-to-creatinine study in women with elevated value in first trimester
 - Repeat HbA1C[2].
 - Capillary blood sugar levels
- Ultrasonography*
- First trimester - Ultrasonographic assessment for pregnancy dating and viability
 - Second trimester - Detailed anatomic ultrasonogram at 18-20 weeks and a fetal echocardiogram if the maternal glycohemoglobin value was elevated in the first trimester
 - Third trimester - Growth ultrasonogram to assess fetal size every 4-6 weeks from 26-36 weeks in women with overt preexisting diabetes; perform a growth ultrasonogram for fetal size at least once at 36-37 weeks for women with gestational diabetes mellitus

Electrocardiography(ECG): If maternal diabetes is longstanding or associated with known microvascular disease, obtain a baseline maternal ECG and echocardiogram [11].

Management

Diet: The goal of dietary therapy is to avoid single large meals and foods with a large percentage of simple carbohydrates. The diet should include foods with complex carbohydrates and cellulose, such as whole grain breads and legumes.

Insulin: The goal of insulin therapy during pregnancy is to achieve glucose profiles similar to those of nondiabetic pregnant women. In gestational diabetes, early intervention with insulin or an oral agent is key to achieving a good outcome when diet therapy fails to provide adequate glycemic control.

Glyburide and metformin: The efficacy and safety of insulin have made it the standard for treatment of diabetes during pregnancy. Diabetic therapy with the oral agents glyburide and metformin, however, has been gaining in popularity. Trials have shown these 2 drugs to be effective, and no evidence of harm to the fetus has been found, although the potential for long-term adverse effects remains a concern [16].

Prenatal obstetric management: Various fetal biophysical tests can ensure that the fetus is well oxygenated, including fetal heart rate testing, fetal movement

assessment, ultrasonographic biophysical scoring, and fetal umbilical Doppler ultrasonographic studies.

Management of the neonate: Current recommendations for infants of diabetic mothers - the most critical metabolic problem for whom is hypoglycemia - include the employment of frequent blood glucose checks and early oral feeding (ideally from the breast) when possible, with infusion of intravenous glucose if oral measures prove insufficient [21].

TESTS FOR SELF-CONTROL

1. What can be the indication for pregnancy interruption?
 - A. aortic failure of II and III degree
 - B. many-valve heart defects
 - C. rheumatic carditis with coronary insufficiency
 - D. mitral valve prolapses
 - E. all of mentioned above

2. The pregnant of 26 yaes old (I tremester) was admitted by family doctor. No complaints. Clinical exam: vesicular breathing, breathing rate – 16 per min, normal heart tones, heart rate – 68 per min. General blood count and urinalysis normal. Ultrasound of heart –non-signifciant isolated defect of interatrial septum. Which will be the doctor’s tactic?
 - A. pregnancy interruption
 - B. non-signifciant isolated defect
 - C. to make appointment with cardiologist
 - D. cardiosurgical treatment
 - E. to make appointment with reumatologist

3. The risk of pregnancy donation doesn’t be ensured by:
 - A.severe pulmonary artery stenosis
 - B.mitral valve prolapse
 - C.aortic coarctation of II-III degree
 - D.congenital heart defect of “bluish type” (pulmonary vascular disease, tetralogy of Fallot).

4. Among pregnant the most often reason of blood pressure increasing is:
 - A. essential arterial hypertention
 - B. pheochromocytoma
 - C. gestosis
 - D. symptomatic arterial hypertention

5. The contraindication for pregnancy is:
 - A. arterial hypertention III stage;
 - B. arterial hypertention I stage;
 - C. arterial hypertention II stage
 - D. arterial hypertention of "white coat"

6. The drug of choice in the case of arterial hypertension for pregnant is:
 - A. methyldopa
 - B. enalapril
 - C. valsartan
 - D. bisoprolol

7. The algorithm of family doctor in the case of asthma exacerbation in pregnant is:
 - A. the out-patient treatment
 - B. urgent admission to the therapeutic department
 - C. appealing to the pulmonologist's consultation
 - D. urgent admission to the gynecology department

8. The most often urogenital diseases during pregnancy is:
 - A. renal colic
 - B. acute glomerulonephritis
 - C. pyelonephritis
 - D. amyloidosis

9. The pregnant, 12 weeks, was appealed to the family doctor with complaints for weakness. Physical exam: moist rose skin, vesicular breathing, breathing rate of 15 per min, normal heart sounds, heart rate of 80 per min. General blood count: hemoglobin 130 g/l, erythrocytes – 4,0; leucocytes – 5,6; SR – 10 mm/h.

Ultrasound of thyroid gland: node of right lobe, 0,5 sm. TSH – 1,2 IU/l; T4 – 10 pmol/l. Is it contraindication for pregnancy?

- A. yes, it is subacute thyroiditis
- B. yes, it is diffuse goiter of IV stage.
- C. no, there is no pathology of thyroid gland
- D. no, there is euthyroid stage

10. What is indication for urgent admission to the hospital in the case of GI pathology in pregnant?

- A. exacerbation of chronic gastroduodenitis
- B. acute pancreatitis
- C. restless bowel syndrome
- D. GI bleeding

11. The first-born, 36 years old, is in the department of pregnancy pathology. Pregnancy 34 weeks, hypertension 2 A stage. BP - 160/100 mm Hg. Ultrasound examination revealed a syndrome of delayed development of the fetus. What are the possible complications in this situation:

- A. Development of hypertensive crisis
- B. Premature detachment of the normally located placenta
- C. Intrauterine fetal death
- D. Eclampsia.

12. For the diagnosis of pyelonephritis of pregnant women, is necessary to perform everything, except:

- A. General analysis of urine, blood
- B. Urine culture to determine the type of pathogen and its sensitivity to the antibiotic
- C. Angiography
- D. Ultrasonography of the kidneys and urinary tract.

13. What extragenital diseases has indications for pregnancy interruption in terms up to 12 weeks:

- A. Endemic goiter of the first degree;

- B. Stage I hypertension;
- C. Chronic gastritis
- D. Glomerulonephritis with hypertensive syndrome.

14. Treatment of acute appendicitis during pregnancy:

- A. Surgery at any time of pregnancy
- B. Conservative-expectant management
- C. Surgery after 12 weeks of pregnancy
- D. None of the above.

15. Differential diagnosis of pregnant women vomiting is most often performed with:

- A. Diseases of the gastrointestinal tract
- B. Food poisoning
- C. Diseases of the biliary tract and pancreatitis
- D. All of the above.

16. The course of pregnancy in patients with diabetes mellitus is complicated with?

- A. Miscarriage
- B. Gestosis
- C. Polyhydramnios
- D. Antenatal fetal death.

17. Choose drugs that can be used during Pregnancy:

- A. Antibiotics (streptomycin, aminoglycosides, tetracyclines)
- B. Indomethacin
- C. Acetylsalicylic acid
- D. ACE inhibitors.

18. When diagnosing elevated blood pressure in the first 20 weeks of pregnancy arterial hypertension is considered:

- A. AH is not associated with pregnancy
- B. Gestational arterial hypertension
- C. Pre-eclampsia

D. Manifestation of early gestosis of pregnant women.

19. Which statement regarding the treatment of iron deficiency anemia with pregnancy is not true?

A. Medicines containing iron are contraindicated for pregnant women

B. For treatment depending on the severity of IDA are used doses of 100-120 mg of ferrous iron

C. Treatment with iron should be long

D. Recommended maintenance therapy with iron in preventive dose before delivery and for 6 months in the postpartum period.

20. The survey plan for pregnant women with iron-deficiency anemia does not include:

A. Clinical analysis of blood and urine

B. Determination of serum iron level, total iron-binding ability

C. Determination of the total protein of blood, bilirubin and its fractions, ALT - according to indications

D. Consultation of the endocrinologist.

1	2	3	4	5	6	7	8	9	10
D	C	B	D	A	A	B	C	D	C
11	12	13	14	15	16	17	18	19	20
D	C	D	A	D	D	C	A	A	D

TOPIC 5

THE ETHICAL AND DEONTOLOGICAL ASPECTS OF FAMILY DOCTORS ACTIVITY

I. Theme actuality. In routine work the family doctor has to show not only his professional skills and knowledge, but ethics and deontology of communications with colleagues and patients.

The main aspects of medical ethics are the relation of doctor to patient, state and interpersonal communications. It is a branch of bioethics. The term medical ethics first dates back to 1803, when English author and physician Thomas Percival published a document describing the requirements and expectations of medical professionals within medical facilities. The Code of Ethics was then adapted in 1847, relying heavily on Percival's words. Over the years in 1903, 1912, and 1947, revisions have been made to the original document. The practice of Medical Ethics is widely accepted and practiced throughout the world.

The deontological ethics or deontology (from Greek δέον, deon, "obligation, duty") is the normative ethical position that judges the morality of an action based on rules [2].

II. Study purposes: to know the principles of ethics and deontology in the practice of family doctor.

III. The practical skills: to communicate with patients and their families about principles of ethics and deontology in the practice of family doctor.

IV. The basic terms and notions, which have to be known by students:

Medical ethics is a system of moral principles that apply values to the practice of clinical medicine and in scientific research. Medical ethics is based on a set of values that professionals can refer to in the case of any confusion or conflict. These values include the respect for autonomy, non-maleficence, beneficence, and justice. These tenets allow doctors, care providers, and families to create a treatment plan and work towards the same common goal without any conflict.

Medical deontology includes problems of observing medical confidentiality, the problem of the extent of the medical worker's responsibility for the life and health of the patient, and problems of relationships of medical workers to each other. In accordance with medical deontology, in relation to the patient, the medical worker must evince maximum attention and apply all his knowledge in order to restore the patient to health or bring relief to him in his sufferings; he must

convey to the patient only information about his health that will be beneficial to him and establish contact between the patient and the physician. He must avoid in the presence of the patient conversation and discussions with colleagues, personnel, and with the patient himself concerning his illness, which sometimes produce the development of iatrogenic diseases.

Humanism is a philosophical and ethical stance that emphasizes the value and agency of human beings, individually and collectively, and generally prefers critical thinking and evidence (rationalism and empiricism) over acceptance of dogma or superstition. Generally, humanism refers to a perspective that affirms some notion of human freedom and progress.

Physician–patient privilege is a legal concept, related to medical confidentiality that protects communications between a patient and his or her doctor from being used against the patient in court. It is a part of the rules of evidence in many common law jurisdictions. Almost every jurisdiction that recognizes physician–patient privilege not to testify in court, either by statute or through case law, limits the privilege to knowledge acquired during the course of providing medical services. In some jurisdictions, conversations between a patient and physician may be privileged in both criminal and civil courts.

Occupational burnout is thought to result from long-term, unresolvable job stress. It is characterized by a set of symptoms that includes exhaustion resulting from work's excessive demands as well as physical symptoms such as headaches and sleeplessness, "quickness to anger", and closed thinking. The job-related burnout is characterized by emotional exhaustion, depersonalization (treating clients/students and colleagues in a cynical way), and reduced feelings of work-related personal accomplishment. Long limited to these dimensions, burnout is now known to involve the full array of depressive symptoms (e.g., low mood, cognitive alterations, and sleep disturbance)

Bioethics is the study of the ethical issues emerging from advances in biology and medicine. It is also moral discernment as it relates to medical policy and practice. Bioethicists are concerned with the ethical questions that arise in the relationships among life sciences, biotechnology, medicine, politics, law, and philosophy. It includes the study of values relating to primary care and other branches of medicine.

Nursing ethics is a branch of applied ethics that concerns itself with activities in the field of nursing. Nursing ethics shares many principles with medical ethics, such as beneficence, non-maleficence and respect for autonomy. It can be distinguished by its emphasis on relationships, human dignity and collaborative care.

A **primary care physician** is a physician who provides both the first contact for a person with an undiagnosed health concern as well as continuing care of varied medical conditions, not limited by cause, organ system, or diagnosis.

V. The content of theme

The ethics and deontology in family doctor's activity. The communication with patient

Medical ethics is the system of moral principles that apply moral values and judgments as they apply to the practice of medicine. The medical ethics encompasses its practical application in clinical settings as well as work on its history, philosophy, theology, and sociology [2].

Medical ethics tends to be understood narrowly as an applied professional ethics, whereas bioethics appears to have worked more expansive concerns, touching upon the philosophy of science and issues of biotechnology. Still, the two fields often overlap and the distinction is more a matter of style than professional consensus. Medical ethics shares many principles with other branches of healthcare ethics, such as nursing ethics.

Values in medical ethics. Six of the values that commonly apply to medical ethics discussions are:

- Autonomy - the patient has the right to refuse or choose their treatment. (Voluntas aegroti suprema lex).
- Beneficence - a practitioner should act in the best interest of the patient. (Salus aegroti suprema lex).
- Non-maleficence- "first, do no harm" (primum non nocere).
- Justice - concerns the distribution of scarce health resources, and the decision of who gets what treatment (fairness and equality).
- Dignity - the patient (and the person treating the patient) have the right to dignity.

- Truthfulness and honesty - the concept of informed consent has increased in importance since the historical events of the Doctors' Trial of the Nuremberg trials and Tuskegee Syphilis Study.

Autonomy: The principle of autonomy recognizes the rights of individuals to self-determination. This is rooted in society's respect for individuals' ability to make informed decisions about personal matters. Autonomy has become more important as social values have shifted to define medical quality in terms of outcomes that are important to the patient rather than medical professionals. The increasing importance of autonomy can be seen as a social reaction to a "paternalistic" tradition within healthcare. Some have questioned whether the backlash against historically excessive paternalism in favor of patient autonomy has inhibited the proper use of soft paternalism to the detriment of outcomes for some patients. Respect for autonomy is the basis for informed consent and advance directives [21].

Autonomy is a general indicator of health. Many diseases are characterized by loss of autonomy. This makes autonomy an indicator for both personal well-being, and for the well-being of the profession. This has implications for the consideration of medical ethics: "is the aim of health care to do good, and benefit from it?" or "is the aim of health care to do good to others, and have them and society, benefit from this?" Ethics tries to find a beneficial balance between the activities of the individual and its effects on a collective.

Psychiatrists are often asked to evaluate a patient's competency for making life-and-death decisions at the end of life. Persons with a psychiatric condition such as delirium or clinical depression may not have the capacity to make end-of-life decisions. Therefore, for these persons, a request to refuse treatment may be ignored. Unless there is a clear advance directive to the contrary, persons who lack mental capacity are generally treated according to their best interests. On the other hand, persons who have the mental capacity to make end-of-life decisions have the right to refuse treatment and choose an early death if that is what they truly want. In such cases, psychiatrists should be a part of protecting that right.

Beneficence: the term refers to actions that promote the wellbeing of others.

This means taking actions that serve the best interests of patients. However, uncertainty surrounds the precise definition of which practices do in fact help patients [2].

The beneficence is the only fundamental principle of medical ethics. They argue that healing should be the sole purpose of medicine, and that endeavors like cosmetic surgery, contraception and euthanasia fall beyond its purview.

Non-Maleficence: the concept is embodied by the phrase, "*first, do no harm*".

Many consider that should be the main or primary consideration ("hence primum"): that it is more important not to harm your patient, than to do them good.

This is partly because enthusiastic practitioners are prone to using treatments that they believe will do good, without first having evaluated them adequately to ensure they do no harm (or only acceptable levels of harm). Much harm has been done to patients as a result. It is not only more important to do no harm than to do good; it is also important to know how likely it is that your treatment will harm a patient. So a physician should go further than not prescribing medications they know to be harmful – he/she should not prescribe medications (or otherwise treat the patient) unless she knows that the treatment is unlikely to be harmful; or at the very least, that patient understands the risks and benefits, and that the likely benefits outweigh the likely risks[11].

In practice, however, many treatments carry some risk of harm. In some circumstances, e.g. in desperate situations where the outcome without treatment will be grave, risky treatments that stand a high chance of harming the patient will be justified, as the risk of not treating is also very likely to do harm. So the principle of non-maleficence is not absolute, and balances against the principle of beneficence (doing good), as the effects of the two principles together often give rise to a double effect.

"Non-maleficence" is defined by its cultural context. Every culture has its own cultural collective definitions of "good" and "evil". Their definitions depend on the degree to which the culture sets its cultural values apart from nature. In some cultures the terms "good" and "evil" are absent: for them these words lack meaning as their experience of nature does not set them apart from nature. Other cultures place the humans in interaction with nature, some even place humans in a position of dominance over nature. The religions are the main means of expression of these considerations [2].

Depending on the cultural consensus conditioning the legal definition of Non-maleficence differs. Violation of non-maleficence is the subject of medical malpractice litigation. Regulations thereof differ, over time, per nation.

Justice. Ethics of justice, also known as morality of justice, is the term used to describe the ethics and moral reasoning common to men and preferred by Kohlberg's stages of moral development. The ethics of justice deals with moral choices through a measure of rights of the people involved and chooses the solution that seems to damage the least number of people [2].

Dignity is a term used in moral, ethical, and political discussions to signify that a being has an innate right to respect and ethical treatment.

It is an extension of Enlightenment-era beliefs that individuals have inherent, inviolable rights, and it is thus closely related to concepts like virtue, respect, self-respect, autonomy, human rights, and enlightened reason.

Dignity is a precondition of freedom. It is generally proscriptive and cautionary: in politics it is usually synonymous to “human dignity”, and is used to critique the treatment of oppressed and vulnerable groups and peoples, though in some case has been extended to apply to cultures and sub-cultures, religious beliefs and ideals, animals used for food or research, and even plants.

In more colloquial settings it is used to suggest that someone is not receiving a proper degree of respect, or even that they are failing to treat themselves with proper self-respect.

Much of the 20th century, dignity appeared in assorted writings as a reason for peacemaking and for promoting human rights. For example, the Universal Declaration of Human Rights adopted by the United Nations General Assembly on December 10, 1948, states:

Article 1. All human beings are born free and equal in dignity and rights. They are endowed with reason and conscience and should act towards one another in a spirit of brotherhood [2].

Article 2. Everyone is entitled to all the rights and freedoms set forth in this Declaration, without distinction of any kind, such as race, color, sex, language, religion, political or other opinion, national or social origin, property, birth or other status. Furthermore, no distinction shall be made on the basis of the political, jurisdictional or international status of the country or territory to which a person belongs, whether it is independent, trust, non-self-governing or under any other limitation of sovereignty.

In the 20th century, dignity became an issue for physicians and medical researchers. It has been invoked in questions of the bioethics of human genetic engineering, human cloning, and end-of-life care [13].

Truthfulness and honesty. Values such as these do not give answers as to how to handle a particular situation, but provide a useful framework for understanding conflicts.

When moral values are in conflict, the result may be an ethical dilemma or crisis. Sometimes, no good solution to a dilemma in medical ethics exists, and occasionally, the values of the medical community (i.e., the hospital and its staff) conflict with the values of the individual patient, family, or larger non-medical community. Conflicts can also arise between health care providers, or among family members. Some argue for example, that the principles of autonomy and beneficence clash when patients refuse blood transfusions, considering them life-saving; and truth-telling was not emphasized to a large extent before the HIV era.

Double effect refers to two types of consequences which may be produced by a single action, and in medical ethics it is usually regarded as the combined effect of beneficence and non-maleficence.

A commonly cited example of this phenomenon is the use of morphine or other analgesic in the dying patient. Such use of morphine can have the beneficial effect of easing the pain and suffering of the patient, while simultaneously having the maleficent effect of hastening the demise of the patient through suppression of the respiratory system [2].

Conflicts between autonomy and beneficence/non-maleficence. Autonomy can come into conflict with Beneficence when patients disagree with recommendations that health care professionals believe are in the patient's best interest. When the patient's interests conflict with the patient's welfare, different societies settle the conflict in a wide range of manners. Western medicine generally defers to the wishes of a mentally competent patient to make his own decisions, even in cases where the medical team believes that he is not acting in his own best interests. However, many other societies prioritize beneficence over autonomy.

Examples include when a patient does not want a treatment because of, for example, religious or cultural views. In the case of euthanasia, the patient, or relatives of a patient, may want to end the life of the patient. Also, the patient may want an unnecessary treatment, as can be the case in hypochondria. A doctor may

want to prefer Autonomy because refusal to please the patient's will would harm the doctor-patient relationship.

Individuals' capacity for informed decision making may come into question during resolution of conflicts between Autonomy and Beneficence. The role of surrogate medical decision makers is an extension of the principle of autonomy.

On the other hand, autonomy and beneficence/non-maleficence may also overlap. For example, a breach of patients' autonomy may cause decreased confidence for medical services in the population and subsequently less willingness to seek help, which in turn may cause inability to perform beneficence.

The principles of autonomy and beneficence/non-maleficence may also be expanded to include effects on the relatives of patients or even the medical practitioners, the overall population and economic issues when making medical decisions [12].

Euthanasia. Some American physicians interpret the non-maleficence principle to exclude the practice of euthanasia, though not all concur. In some countries euthanasia is accepted as standard medical practice. Legal regulations assign this to the medical profession. In such nations, the aim is to alleviate the suffering of patients from diseases known to be incurable by the methods known in that culture. In that sense, the "Primum no Nocere" is based on the realization that the inability of the medical expert to offer help, creates a known great and ongoing suffering in the patient. "Not acting" in those cases is believed to be more damaging than actively relieving the suffering of the patient. Evidently the ability to offer help depends on the limitation of what the practitioner can do. These limitations are characteristic for each different form of healing, and the legal system of the specific culture. The aim to "not do harm" is still the same. It gives the medical practitioner a responsibility to help the patient, in the intentional and active relief of suffering, in those cases where no cure can be offered [2].

Informed consent ethics usually refers to the idea that a person must be fully-informed about and understand the potential benefits and risks of their choice of treatment. An uninformed person is at risk of mistakenly making a choice not reflective of his or her values or wishes. It does not specifically mean the process of obtaining consent, nor the specific legal requirements, which vary from place to place, for capacity to consent. Patients can elect to make their own medical decisions, or can delegate decision-making authority to another party. If the patient

is incapacitated, laws around the world designate different processes for obtaining informed consent, typically by having a person appointed by the patient or their next of kin make decisions for them. The value of informed consent is closely related to the values of autonomy and truth telling [16].

A correlate to "informed consent" is the concept of informed refusal.

Confidentiality is commonly applied to conversations between doctors and patients. This concept is commonly known as patient-physician privilege.

Legal protections prevent physicians from revealing their discussions with patients, even under oath in court.

Confidentiality is mandated in America by laws. However, numerous exceptions to the rules have been carved out over the years. For example, many states require physicians to report gunshot wounds to the police and impaired drivers to the Department of Motor Vehicles. Confidentiality is also challenged in cases involving the diagnosis of a sexually transmitted disease in a patient who refuses to reveal the diagnosis to a spouse, and in the termination of a pregnancy in an underage patient, without the knowledge of the patient's parents.

Traditionally, medical ethics has viewed the duty of confidentiality as a relatively non-negotiable tenet of medical practice. More recently, critics like Jacob Appel have argued for a more nuanced approach to the duty that acknowledges the need for flexibility in many cases.

Importance of communication. Many so-called "ethical conflicts" in medical ethics are traceable back to a lack of communication. Communication breakdowns between patients and their healthcare team, between family members, or between members of the medical community, can all lead to disagreements and strong feelings. These breakdowns should be remedied, and many apparently insurmountable "ethics" problems can be solved with open lines of communication. It's more important factor in it [12].

Control and resolution. To ensure that appropriate ethical values are being applied within hospitals, effective hospital accreditation requires that ethical considerations are taken into account, for example with respect to physician integrity, conflicts of interest, research ethics and organ transplantation ethics.

Cultural concerns. Culture differences can create difficult medical ethics problems. Some cultures have spiritual or magical theories about the origins of

disease, for example, and reconciling these beliefs with the tenets of Western medicine can be difficult [2].

Truth-telling.Some cultures do not place a great emphasis on informing the patient of the diagnosis, especially when cancer is the diagnosis. American culture rarely used truth-telling especially in medical cases, up until the 1970s. In American medicine, the principle of informed consent now takes precedence over other ethical values, and patients are usually at least asked whether they want to know the diagnosis.

Online Business Practices.The delivery of diagnosis online leads patients to believe that doctors in some parts of the country are at the direct service of drug companies. Finding diagnosis as convenient as what drug still has patent rights on it. Physicians and drug companies are found to be competing for top ten search engine ranks to lower costs of selling these drugs with little to no patient involvement.

Conflicts of interest.Physicians should not allow a conflict of interest to influence medical judgment. In some cases, conflicts are hard to avoid, and doctors have a responsibility to avoid entering such situations. Unfortunately, research has shown that conflicts of interests are very common among both academic physicians and physicians in practice[2].

Referral.For example, doctors who receive income from referring patients for medical tests have been shown to refer more patients for medical tests. Fee splitting and the payments of commissions to attract referrals of patients is considered unethical and unacceptable in most parts of the world.

Vendor relationships.Studies show that doctors can be influenced by drug company inducements, including gifts and food. Industry-sponsored Continuing Medical Education programs influence prescribing patterns. Many patients surveyed in one study agreed that physician gifts from drug companies influence prescribing practices. A growing movement among physicians is attempting to diminish the influence of pharmaceutical industry marketing upon medical practice, as evidenced by Stanford University's ban on drug company-sponsored lunches and gifts [11].

Treatment of family members. Many doctors treat their family members. Doctors who do so must be vigilant not to create conflicts of interest or treat inappropriately.

Sexual relationships between doctors and patients can create ethical conflicts, since sexual consent may conflict with the fiduciary responsibility of the physician. Doctors who enter into sexual relationships with patients face the threats of deregistration and prosecution. In the early 1990s it was estimated that 2-9% of doctors had violated this rule. Sexual relationships between physicians and patients' relatives may also be prohibited in some jurisdictions, although this prohibition is highly controversial [2].

TESTS FOR SELF-CONTROL

1. The medical ethics is:
 - A. the branch of general ethics in the doctor's activity;
 - B. the science about set of values such as autonomy, non-maleficence, beneficence, and justice;
 - C. the science that apply values to the practice of clinical medicine and in scientific research;
 - D. all of mentioned above;
 - E. no correct answer.

2. The issues of medical ethics are applied in?
 - A. doctor-patient communication;
 - B. doctor-patient's relatives communication;
 - C. communication with colleagues;
 - D. doctor – society communication;
 - E. communication.

3. The cognitive process in the structure of medical professional activity:
 - A. perception, attention
 - B. imagination
 - C. memory
 - D. cognition

4. The components of professional communication in medical activity are:
 - A. communicative process, communicative abilities, communicative phenomena;

- B. communicative abilities, communicative phenomena;
 - C. communicative process, communicative abilities;
 - D. communicative process.
5. Note the psychological requirements for emotional profile of medical worker:
- A. self-control;
 - B. emotional stability, restraint;
 - C. all of mentioned above;
 - D. medical activity don't need of the special requirements for emotional profile of medical worker
6. Which social and psychological factors impact on the medical activity and personality of medical worker?
- A. salary;
 - B. social and psychological climate in the collective, management style
 - C. age;
 - D. work experience.
7. The psychological changes in the personality due to professional activity are:
- A. fatigue;
 - B. exhausted;
 - C. monotony;
 - D. professional deformation, professional burnout.
8. The psychological features of the medical personality are revealed:
- A. in the interrelation;
 - B. in relation to work and to himself;
 - C. in the field of professional knowledge and emotions;
 - D. all of mentioned above
9. When was accepted the international code of medical ethics?
- A. Geneva, 1948.
 - B. Helsinki, 1964.
 - C. Tokyo, 1975.

- D. London, 1949.
- E. Nürnberg, 1947

10. The duties of doctor include all:

- A. discussion of remuneration.
- B. assessment of emotional state of patient
- C. deep assessment of patient's personality .
- D. to contact with patient and his relatives
- E. psychological support of patient and his relatives

11. Definition of the concept of "medical deontology":

- A. the science of the relationship between a physician and a patient.
- B. science on the moral principles of the medical profession.
- C. science of the relationship between a physician and a patient, about the duties of a doctor.
- D. system of ethical rules, norms and principles of behavior in the activities of the physician.
- E. system of professional, legal and moral and ethical principles of the activities of the doctor.

12. Who first proposed the term "deontology"?

- A. Hippocrates.
- B. Avicenna
- C. Potter
- D. Bentham.
- E. Mudrov.

13. In what document are the basic postulates of the ethics and duties of the doctor formulated?

- A. Geneva Declaration.
- B. Lisbon Declaration.
- C. Helsinki Declaration.
- D. The International Code of Medical Ethics.
- E. Hippocrates's oath.

14. Basic principles of medical ethics:
- A. truth.
 - B. justice.
 - C. confidentiality.
 - D. humanism.
 - E. do not harm.
15. The Geneva Declaration is based on:
- A. oath of Hippocrates.
 - B. nuremberg Code.
 - C. international Code of Medical Ethics.
 - D. all of the above is correct.
 - E. all of the above is incorrect.
16. What actions of medical worker can be classified as a deliberate crime?
- A. failure to help the patient.
 - B. illegal abortion.
 - C. violation of the rules of the fight against the epidemic.
 - D. violation of rules for the storage and distribution of narcotic drugs.
 - E. all of the above.
17. The basis of a successful relationship between a doctor and a patient is:
- A. mutual understanding.
 - B. feelings.
 - C. trust
 - D. professionalism.
 - E. authority.
18. Models of communication between doctor and patient:
- A. all listed.
 - B. informational.
 - C. interpretational.
 - D. internalistic.

E. liberal.

19. What does the term "iatrogenia" mean?

- A. unfavorable consequence of the behavior of the medical staff.
- B. psychogenic disorder due to errors of the medical staff.
- C. disease caused by traumatic influence of thoughtless expressions and actions of medical staff.
- D. disease caused by the doctor's wrong actions.
- E. disease due to the reading of medical literature.

20. The main causes of iatrogenic diseases:

- A. in sufficient professional level of the doctor.
- B. in sufficient psychological contact of the doctor with the patient.
- S. polipragmazyia.
- D. indecision of the doctor.
- E. all of the above.

1	2	3	4	5	6	7	8	9	10
D	A	D	A	B	B	D	D	D	A
11	12	13	14	15	16	17	18	19	20
C	D	D	D	A	C	C	A	B	A

TOPIC 6

THE RISK FACTORS AND SCREENING OF MAIN CHRONIC NON-EPIDEMIC DISEASES IN CHILDREN

I. Theme actuality. The reasons of arterial hypertension are in the childhood and adolescence. The early diagnostics and the medical check-up programs in the childhood is important and significant challenges. The diagnostics of pathological changes helps to prevent the onset of chronic non-epidemic diseases and impact on the population health. The regular medical check-up has to be implemented in the preventive activity of family doctor [2].

II. Study purposes: to know the classification of risk factors and screening program of main non-epidemic diseases in children under 5 years old, to realize preventive measures in medical check-up.

III. The practical skills: screening and curing of arterial hypertension, dyslipidemia, obesity, diabetes mellitus among children; to prevent the rheumatism, rickets, atopic dermatitis, asthma.

IV. The basic terms and notions, which have to be known by students:

Rheumatism is an umbrella term for conditions causing chronic, often intermittent pain affecting the joints and/or connective tissue. The term "rheumatism", however, does not designate any specific disorder, but covers at least 200 different conditions. Sources dealing with rheumatism tend to focus on arthritis, but "rheumatism" may also refer to other conditions causing chronic pain, grouped as "non-articular rheumatism", also known as "regional pain syndrome" or "soft tissue rheumatism".

Rickets is defective mineralization or calcification of bones before epiphyseal closure in immature mammals due to deficiency or impaired metabolism of vitamin D, phosphorus or calcium, potentially leading to fractures and deformity. Rickets is among the most frequent childhood diseases in many developing countries. The predominant cause is avitamin D deficiency, but lack of adequate calcium in the diet may also lead to rickets (cases of severe diarrhea and vomiting may be the cause of the deficiency). Although it can occur in adults, the majority of cases occur in children suffering from severe malnutrition, usually resulting from famine or starvation during the early stages of childhood.

Atopic dermatitis is a type of inflammation of the skin. It results in itchy, red, swollen, and cracked skin. Clear fluid may come from the affected areas,

which often thicken over time. The condition typically starts in childhood with changing severity over the years. In children under one year of age much of the body may be affected. As children get older, the back of the knees and front of the elbows are the most common areas affected. Scratching worsens symptoms and affected people have an increased risk of skin infections. Many people with atopic dermatitis develop hay fever or asthma.

Obesity is a medical condition in which excess body fat has accumulated to the extent that it may have a negative effect on health. People are generally considered obese when their body mass index (BMI), a measurement obtained by dividing a person's weight by the square of the person's height, is over 30kg/m^2 , with the range $25\text{--}30\text{kg/m}^2$ defined as overweight. Obesity increases the likelihood of various diseases and conditions, particularly cardiovascular diseases, type 2 diabetes, obstructive sleep apnea, certain types of cancer, osteoarthritis and depression.

Screening in medicine, is a strategy used in a population to identify the possible presence of an as-yet-undiagnosed disease in individuals without signs or symptoms. This can include individuals with pre-symptomatic or unrecognized symptomatic disease. As such, screening tests are somewhat unusual in that they are performed on persons apparently in good health. Screening interventions are designed to identify disease in a community early, thus enabling earlier intervention and management in the hope to reduce mortality and suffering from a disease.

V. The content of theme

Evaluated risk factor for cardiovascular diseases in children:

- Family history
- Age
- Gender
- Nutrition/ diet
- Physical inactivity
- Tobacco exposure
- Blood pressure
- Lipids/Overweight/ Obesity
- Diabetes mellitus
- Predisposing conditions

- Metabolic syndrome
- Inflammatory markers
- Perinatal factors

The risk factors and risk behaviors that accelerate the development of atherosclerosis begin in childhood and there is increasing evidence that risk reduction delays progression towards clinical disease. *Evidence Linking Risk Factors in Childhood to Atherosclerosis Assessed Non-Invasively* [2].

Measures of sub-clinical atherosclerosis have developed, including the demonstration of coronary calcium on electron beam computed tomography (EBCT) imaging, increased medial thickness in the carotid artery assessed with ultrasound (CIMT), endothelial dysfunction (reduced arterial dilation) with brachial ultrasound imaging, and increased left ventricular mass with cardiac ultrasound. These measures have been assessed in young individuals with severe abnormalities of individual risk factors [11].

- In adolescents with marked elevation of LDL-cholesterol due to familial heterozygous hypercholesterolemia, abnormal levels of coronary calcium, increased CIMT and impaired endothelial function have been demonstrated.
- Children with hypertension have been shown to have increased CIMT, increased left ventricular mass and eccentric left ventricular geometry.
- Children with type 1 DM have significantly abnormal endothelial function and increased CIMT.
- Children and young adults with a family history of myocardial infarction have increased CIMT, higher prevalence of coronary calcium, and endothelial dysfunction.
- Endothelial dysfunction has been demonstrated by ultrasound and plethysmography in association with cigarette smoking (passive and active) and obesity. In obese children, improvement in endothelial function occurs with regular exercise.
- Left ventricular hypertrophy at levels associated with excess mortality in adults has been demonstrated in children with severe obesity.

Risk Factor tracking from childhood to adulthood exists for all the major risk factors:

- *Obesity* tracks more strongly than any other risk factor.

- For *cholesterol and blood pressure*, tracking correlation coefficients in the range of 0.4 have been reported consistently across many studies, correlating these measures in children 5 to 10 years of age with results 20 to 30 years later. Having cholesterol or blood pressure levels in the upper portion of the pediatric distribution makes having these as adult risk factors likely but not certain. Those who develop obesity have been shown to be more likely to develop hypertension or dyslipidemia as adults.
- Tracking data on *physical fitness* are more limited. Physical activity levels do track but not as strongly as other risk factors.
- By its addictive nature, *tobacco use* persists into adulthood though approximately 50% of those who have ever smoked eventually quit.
- *Type I diabetes mellitus* is a lifelong condition.
- The insulin resistance of type II DM can be alleviated by exercise, weight loss, and bariatric surgery, but the long term outcome of type II DM diagnosed in childhood is not known.
- As above, risk factor clusters such as those seen with *obesity* and the *metabolic syndrome* have been shown to track from childhood into adulthood [2].

Integrated Cardiovascular Health Schedule [11]

Risk Factor	Age Birth-12 m	Age 1-4 y	Age 5-9 y	Age 9-11 y	Age 12-17 y	Age 18-21 y
FAMILY HISTORY (FHx) OF EARLY CVD		At age 3 y, evaluate FHx for early CVD: parents, grandparents, aunts/uncles, M > 55 y, F > 65 y. Review with parents, refer prn. (+) FHx identifies children for intensive CVD RF attention.	Update at each nonurgent health encounter.	Reevaluate FHx for early CVD in parents, grandparents, aunts/uncles, M > 55 y, F > 65 y.	Update at each nonurgent health encounter.	Repeat FHx evaluation with patient.
TOBACCO	Advise smoke-	Continue	Begin active	Assess	Continue	Reinforce

EXPOSURE	free home; offer smoking cessation assistance or referral to parents.	active antismoking advice with parents. Offer smoking cessation assistance and referral as needed.	antismoking advice with child.	smoking status of child. Active antismoking counseling or referral as needed.	active antismoking counseling with patient. Offer smoking cessation assistance or referral as needed.	strong antismoking message. Offer smoking cessation assistance or referral as needed.
NUTRITION/ DIET	Support breast-feeding as optimal to age 12 m if possible. Add formula if breast-feeding decreases or stops before age 12 m.	Age 12-24 m, may change to cow's milk with % fat per family & pediatric care provider. After age 2 y, fat-free milk for all; juice 4 oz/d; transition to CHILD 1 Diet by age 2 y.	Reinforce CHILD 1 diet messages.	Reinforce CHILD 1 diet messages as needed.	Obtain diet information from child and use to reinforce healthy diet and limitations and provide counseling as needed.	Review healthy diet with patient.
GROWTH, OVERWEIGHT / OBESITY	Review FHx for obesity. Discuss wt for ht tracking, growth chart, and healthy diet.	Chart ht/ wt/ BMI classify wt by BMI from age 2 y; review with parent.	Chart ht/ wt/ BMI and review with parent. BMI > 85th %ile, crossing %iles intensify diet/ activity focus x 6m. If no change ? RD referral, manage per obesity algorithms. BMI 95th %ile, manage per obesity algorithms.	Chart ht/ wt/ BMI and review with parent and child. BMI > 85th %ile, crossing %iles intensify diet/ activity focus x 6m. If no change ? RD referral, manage per obesity algorithms. BMI 95th %ile, manage per obesity algorithms.	Chart ht/ wt/ BMI and review with child and parent. BMI > 85th %ile, crossing %iles intensify diet/ activity focus x 6m. If no change RD referral, manage per obesity algorithms. BMI 95th %ile, manage per obesity algorithms.	Review ht/ wt/ BMI and norms for health with patient. BMI > 85th %ile, crossing %iles intensify diet/activity focus x 6 m. If no change RD referral, manage per obesity algorithms. BMI 95th %ile, manage per obesity algorithms.
LIPIDS	No routine	Obtain	Obtain fasting	Obtain	Obtain fasting	Measure

	lipid screening.	fasting lipid profile only if FHx (+), parent with dyslipidemia, any other RFs (+), or high-risk condition.	lipid profile only if FHx (+), parent with dyslipidemia, any other RFs (+), or high-risk condition.	universal lipid screen with nonfasting non-HDL = TC ? HDL, or fasting lipid profile ?manage per lipid algorithms as needed.	lipid profile if FHx newly (+), parent with dyslipidemia, any other RFs (+), or high-risk condition; manage per lipid algorithms as needed.	nonfasting non-HDL-C or fasting lipid profile in all x 1 Review with patient; manage with lipid algorithms per ATP as needed.
BLOOD PRESSURE	Measure BP in infants with renal/urologic/cardiac diagnosis or Hx of neonatal ICU.	Measure annual BP in all from age 3 y; chart for age/gender/ht %ile and review with parent.	Check BP annually and chart for age/gender/ht; Review with parent; work up and/or manage per BP algorithm as needed.	Check BP annually and chart for age/gender/ht; Review with parent, work up and/or manage per BP algorithm as needed.	Check BP annually and chart for age/gender/ht; Review with adolescent and parent, work up and/or manage per BP algorithm as needed.	Measure BP; Review with patient. Evaluate and treat as per JNC guidelines.
PHYSICAL ACTIVITY	Encourage parents to model routine activity. No screen time before age 2 y.	Encourage active play; limit sedentary/screen time to 2 h/d. No TV in bedroom.	Recommend MVPA 1h/d; limit screen/sedentary time to 2 h/d.	Obtain activity Hx from child; recommend MVPA 1 h/d; screen/sedentary time 2 h/d.	Use activity Hx with adolescent to reinforce MVPA 1 h/d, leisure screen time 2 h/d.	Discuss lifelong activity, sedentary time limits with patient.
DIABETES				Measure fasting glucose per ADA guidelines, refer to endocrinologist as needed.	Measure fasting glucose per ADA guidelines, refer to endocrinologist as needed.	Obtain fasting glucose if indicated, refer to endocrinologist as needed.

ABBREVIATIONS: m = months; y = years; FHx = family history; M = male; F = female; RF = risk factor; % = percent; BMI = body mass index; %ile = percentile; ADA = American Diabetes Association; MVPA = moderate-to-vigorous physical activity; ATP = Adult Treatment Panel III (*Third Report of the Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults*); CHILD 1=CardiovascularHealthIntegratedLifestyleDiet; JNC =*The Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure*; BP = blood

pressure; h/d = hours per day

A family history of CVD represents the net effect of shared genetic, biochemical, behavioral and environmental components. In adults, epidemiologic studies have demonstrated that a family history of premature coronary heart disease in a first degree relative; heart attack, treated angina, percutaneous coronary catheter interventional procedure, coronary artery bypass surgery, stroke or sudden cardiac death in a male parent or sibling before the age of 55 years or a female parent or sibling before the age of 65 years; is an important independent risk factor for future CVD. The process of atherosclerosis is complex and involves many genetic loci and multiple environmental and personal risk factors. Nonetheless, the presence of a positive parental history has been consistently shown to significantly increase baseline risk for CVD. The risk for CVD in offspring is strongly inversely related to the age of the parent at the time of the index event. The association of a positive family history with increased CV risk has been confirmed for men, women and siblings and in different racial and ethnic groups. The evidence review identified all randomized controlled trials (RCTs), systematic reviews, meta-analyses and observational studies that addressed family history of premature atherosclerotic disease and the development and progression of atherosclerosis from childhood into young adult life [12].

Physical activity is any bodily movement produced by contraction of skeletal muscle that increases energy expenditure above a basal level. Physical activity can be focused on strengthening muscles, bones and joints but because these guidelines address CV health, the evidence review concentrated on aerobic activity and on the opposite of activity, sedentary behavior. There is strong evidence for beneficial effects of physical activity and disadvantageous effects of a sedentary lifestyle on the overall health of children and adolescents across a broad array of domains [2].

Conditions Under Which Children < 3 Years Old Should Have BP Measured:

- History of prematurity, very low birth weight, or other neonatal complication requiring intensive care
- Congenital heart disease (repaired or unrepaired)
- Recurrent urinary tract infections, hematuria, or proteinuria

- Known renal disease or urologic malformations
- Family history of congenital renal disease
- Solid-organ transplant
- Malignancy or bone marrow transplant
- Treatment with drugs known to raise BP
- Other systemic illnesses associated with hypertension (neurofibromatosis, tuberous sclerosis, etc.) [2].
- Evidence of increased intracranial pressure

Observational studies have identified sample populations that are at special risk for obesity as follows:

1. Children with BMI between the 85th and 95th percentiles
2. Children in whom there is a positive family history of obesity in one or both parents.
3. Early onset of increasing weight beyond that appropriate for increase in height. This can be identified early, beginning in the first year of life.
4. Excessive increase in weight during adolescence, particularly in black girls
5. Children who have been previously very active and become inactive or adolescents who are inactive in general. (An example would be a child who has previously participated in organized sports and has stopped, particularly in adolescence.) [14].

Screening Recommendations for Type 2 Diabetes Mellitus in Childhood

Criteria:

- Overweight, defined by:
 - BMI > 85th percentile for age and sex, or
 - Weight for height > 85th percentile, or
 - Weight > 120% of ideal for height

Plus any two of the following risk factors:

- Family history of type 2 diabetes in first- or second-degree relative
- Race/ethnicity (Native American, African/American, Latino, Asian/American, Pacific Islander)
- Signs of insulin resistance or conditions associated with insulin resistance (acanthosis nigricans, hypertension, dyslipidemia, or polycystic ovary syndrome)

Screening procedure:

Age of initiation:

10 years, or at onset of puberty, if puberty occurs at a younger age

Frequency:

Every 2 years

Test:

Fasting plasma glucose

Special Risk Pediatric Conditions: Stratification by Risk Category

High Risk:

Manifest coronary artery disease - age 30 years: Clinical evidence

- T1DM or T2DM
- Chronic kidney disease/ end-stage renal disease/ post renal transplant
- Post orthotopic heart transplantation
- Kawasaki disease with current coronary aneurysms

Moderate Risk:

Accelerated atherosclerosis: Pathophysiologic evidence

- Kawasaki disease with regressed coronary aneurysms
- Chronic inflammatory disease (systemic lupus erythematosus, juvenile rheumatoid arthritis)
- Human immunodeficiency virus infection
- Nephrotic syndrome

The CHILD-1 diet is the first stage of the Cardiovascular Health Integrated Lifestyle Diet:

The diet was designed in mind for kids:

- with high cholesterol levels (dyslipidemia)
- who are overweight
- with high blood pressure
- with high-risk medical conditions, such as having type 1 or type 2 diabetes, having had a kidney transplant or heart transplant, chronic kidney disease, end-stage renal disease, or Kawasaki disease and still having coronary artery aneurysms
- with a family history of early cardiovascular disease, dyslipidemia (high cholesterol levels), obesity, primary hypertension, diabetes mellitus, or exposure to smoking in the home.

Most children with risk factors should transition to a CHILD-1 diet when they are two years old. Parents and pediatricians should then continue to reinforce CHILD-1 diet messages as these children get older [2].

The CHILD-1 diet works to:

- limit or avoid sugar-sweetened drinks
- encourage kids to drink water
- avoid trans fat
- encourage high-fiber foods
- limit sodium and avoid foods high in salt
- encourage kids to drink fat-free unflavored milk
- teach kids about appropriate portion size, which will be partly based on the estimated number of calories they need each day based on their age, gender, and how active they are
- encourage daily physical activity
- limit cholesterol intake to less than 300 mg each day
- teach healthy eating habits
- encourage a DASH-type diet rich in fruits, vegetables, low-fat or fat-free milk and other dairy products, whole grains, fish, poultry, beans, nuts and seeds, and lower in sweets and added sugars, fats, and red meats [11].

CHILD-1 for Preteens and Teens

In addition to continuing to drink fat-free unflavored milk, water, and limited amounts of sugar-sweetened drinks, older kids should be encouraged to follow healthy eating habits, such as:

- eating breakfast every day
- eating meals as a family
- limiting fast-food meals

Continuing to eat high-fiber foods, watching portion sizes, and being physically active every day are also still important at this age [16].

CHILD-1 Next Steps

It is important to keep in mind that CHILD-1 diet is just the first step for children with high cholesterol. If after a 3 to 6-month trial of CHILD-1 dietary changes a child continues to have high cholesterol, they should then be moved to a CHILD-2 diet with:

- only 25% to 30% of calories from fat

- less than or equal to 7% of calories from saturated fat
- about 10% of calories from monounsaturated fat
- less than 200 mg/d of cholesterol
- avoid trans fats as much as possible

The CHILD-2-LDL diet encourages the use of plant sterols, plant stanol esters, and water-soluble fiber psyllium to replace some fats in the child's diet. In contrast, the CHILD-2-TG diet encourages the replacement of simple sugars with complex carbohydrates and increasing omega-3 fatty acids.

Keep in mind that a registered dietitian should likely help your child plan and follow their CHILD-2 diet, and may even be helpful for the CHILD-1 diet too [2].

Dyslipidemia

Acceptable, Borderline-High, and High Plasma Lipid, Lipoprotein and Apolipoprotein Concentrations (mg/dL) For Children and Adolescents

NOTE: Values given are in mg/dL; to convert to SI units, divide the results for TC, LDL-C, HDL-C and non-HDL-C by 38.6; for TG, and divide by 88.6. [2].

Category	Acceptable	Borderline	High+
TC	< 170	170-199	> 200
LDL-C	< 110	110-129	> 130
Non-HDL-C	< 120	120-144	> 145
ApoB	< 90	90-109	>110
TG			
0-9 years	< 75	75-99	> 100
10-19 years	< 90	90-129	> 130

Category	Acceptable	Borderline	Low+
HDL-C	> 45	40-45	< 40

ApoA-I	>120	115-120	<115
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Causes of Secondary Dyslipidemia

EXOGENOUS

- Alcohol
- Drug therapy:
 - Corticosteroids
 - Isoretinoin
 - Beta-blockers
 - Some oral contraceptives
 - Select chemotherapeutic agents
 - Select antiretroviral agents

ENDOCRINE/METABOLIC

- Hypothyroidism/hypopituitarism
- Diabetes mellitus types 1 and 2
- Pregnancy
- Polycystic ovary syndrome
- Lipodystrophy
- Acute intermittent porphyria

RENAL

- Chronic renal disease
- Hemolytic uremic syndrome
- Nephrotic syndrome

INFECTIOUS

- Acute viral/bacterial infection (Delay measurement until >3 weeks postinfection)
- Human immunodeficiency virus infection (HIV)
- Hepatitis

HEPATIC

- Obstructive liver disease/cholestatic conditions
- Biliary cirrhosis
- Alagille syndrome

INFLAMMATORY DISEASE

- Systemic lupus erythematosus
- Juvenile rheumatoid arthritis

STORAGE DISEASE

- Glycogen storage disease
- Gaucher's disease
- Cystine storage disease
- Juvenile Tay-Sachs disease
- Niemann-Pick disease

OTHER

- Kawasaki disease
- Anorexia nervosa
- Post solid organ transplantation
- Childhood cancer survivor
- Progeria
- Idiopathic hypercalcemia
- Klinefelter syndrome
- Werner's syndrome

Major Lipid Disorders in Children and Adolescents

Primary Lipid Disorders	Lipid/Lipoprotein Abnormality
Familial hypercholesterolemia	Homozygous: LDL-C Heterozygous: LDL-C*
Familial defective apolipoprotein B	LDL-C
Familial combined hyperlipidemia*	Type IIa: LDL-C Type IV: VLDL-C, TG Type IIb: LDL-C, VLDL-C, TG Types IIb and IV often with HDL-C
Polygenic hypercholesterolemia	LDL-C
Familial hypertriglyceridemia (200-1,000 mg/dL)	VLDL-C, TG
Severe hypertriglyceridemia (> 1,000 mg/dL)	Chylomicrons, VLDL-C, TG
Familial hypoalphalipoproteinemia	HDL-C
Dysbetalipoproteinemia (TC: 250-500 mg/dL; TG: 250-600 mg/dL)	IDL-C, chylomicron remnants

Conclusions and Grading of the Evidence Review for Lipid Assessment in Childhood and Adolescence

- abnormal lipid levels in childhood are associated with increased evidence of atherosclerosis. (Grade B)[2].
- the early identification and control of dyslipidemia throughout youth and into adulthood will substantially reduce clinical CVD risk beginning in young adult life. Preliminary evidence in children with heterozygous FH with markedly elevated LDL-C indicates that earlier treatment is associated with reduced subclinical evidence of atherosclerosis. (Grade B)[17].
- TC and LDL-C levels fall as much as 10-20% or more during puberty. (Grade B) Based on this normal pattern of change in lipid and lipoprotein levels with growth and maturation, age 10 years (range age 9-11 years) is a stable time for lipid assessment in children. (Grade D) For most children, this age range will precede onset of puberty.
- Significant evidence exists that using family history of premature CVD or of cholesterol disorders as the primary factor in determining lipid screening for children misses approximately 30-60% of children with dyslipidemias, and accurate and reliable measures of family history are not available. (Grade B) In the absence of a clinical or historic marker, identification of children with lipid disorders that predispose them to accelerated atherosclerosis requires universal lipid assessment. (Grade B)[14].
- Non-HDL-C has now been identified as a significant predictor of the presence of atherosclerosis, as powerful as any other lipoprotein cholesterol measure in children and adolescents. For both children and adults, non-HDL-C appears to be more predictive of persistent dyslipidemia and therefore atherosclerosis and future events than TC, LDL-C or HDL-C alone. A major advantage of non-HDL-C is that it can be accurately calculated in a non-fasting state and is therefore very practical to obtain in clinical practice. The Expert Panel felt that non-HDL-C should be added as a screening tool for identification of a dyslipidemic state in childhood. (Grade B)
- In terms of other lipid measurements: 1) the measurement of apoB and apoA-1 for universal screening provides no additional advantage over measuring non-HDL-C, LDL-C, and HDL-C; 2) measurement of Lp(a) is useful in the assessment of children with both hemorrhagic and ischemic stroke; 3) in offspring

of a parent with premature CVD and no other identifiable risk factors, elevations of apoB, apoA-1, and Lp(a) have been noted; and 4) measurement of lipoprotein subclasses and their sizes by advanced lipoprotein testing has not been shown to have sufficient clinical utility in children at this time. (Grade B)

- Obesity is commonly associated with a combined dyslipidemia pattern with mild elevation in TC and LDL-C, moderate to severe elevation in TG and low HDL-C. This is the most common dyslipidemic pattern seen in childhood, and lipid assessment of overweight and obese children identifies an important proportion with significant lipid abnormalities. (Grade B)

- Dyslipidemias can be acquired genetically but also secondary to specific conditions. There is impressive evidence for accelerated atherosclerosis both clinically and as assessed with noninvasive methods in some of these conditions, which accordingly have been designated as special risk diagnoses for accelerated atherosclerosis. Lipid evaluation of these patients contributes to risk assessment and identifies an important proportion with Dyslipidemia. (Grade B)

Use of Medication to Treat Dyslipidemia

- Decisions regarding the need for medication therapy should be based on the average of results from at least two fasting lipid profiles obtained at least 2 weeks but no more than 3 months apart (Grade C)[13].

The goal of LDL-lowering therapy in childhood and adolescence is LDL-C below the 95th percentile (130 mg/dL)

- Children with homozygous FH and extremely elevated LDL-C levels (>500 mg/dL) have undergone effective LDL-lowering therapy with biweekly LDL apheresis under the care of lipid specialists in academic medical centers (Grade C).

- the benefits of LDL-lowering therapy in children at high risk for accelerated atherosclerosis (such as those with chronic kidney disease, T1DM or T2DM, Kawasaki disease with coronary aneurysms, or postcardiac transplantation) should be considered for initiation of medication therapy (Grade C) [2].

- The bile acid sequestrants are medications that bind bile salts within the intestinal lumen and prevent their enterohepatic reuptake in the terminal ileum, resulting in a depletion of bile salts in the liver and a signal for increased production. Since bile salts are synthesized from intracellular cholesterol in the liver, the intracellular pool of cholesterol becomes depleted, signaling increased production of LDL receptors and increased clearance of circulating LDL-C to

replenish the intracellular cholesterol pool for increased production of bile salts. Studies of bile acid sequestrants in children and adolescents ages 6-18 years with LDL-C levels from 131 to 190 mg/dL show TC reduction of 7-17% and reduction of LDL-C of 10-20%, sometimes with a modest elevation in TG levels. The bile acid sequestrants commonly have gastrointestinal side effects, and these significantly affect compliance. However, they are safe and moderately effective (Grade A).

- Statin medications inhibit hydroxymethylglutaryl coenzyme A reductase, which is a rate-limiting enzyme in the endogenous cholesterol synthesis pathway. This results in a decrease in the intracellular pool of cholesterol, which signals upregulation of LDL receptors and increased clearance of circulating LDL-C. As a group, statins have been shown to reduce LDL-C in children and adolescents with marked LDL-C elevation or FH (defined as elevated LDL-C in the child in conjunction with a family history of elevated LDL-C and/or atherosclerosis or CAD) when used from 8 weeks to 2 years for children ages 8-18 years. The lower LDL-C level for eligibility into the statin trials was <190 mg/dl or >160 mg/dl with 2 or more additional risk factors, after a trial period on diet. Trial subjects were monitored carefully throughout treatment; adverse impacts on growth, development, or sexual maturation were not seen, and adverse event profiles and efficacy were similar to those in studies of adults (Grade A)[16].

- Adverse effects from statins are rare at standard doses but include myopathy and hepatic enzyme elevation. Routine monitoring of hepatic enzymes and clinical assessment for muscle toxicity are strongly recommended for children and adolescents on statin therapy. The risk of adverse events increases with use of higher doses and interacting drugs, the latter occurring primarily with drugs that are metabolized by the cytochrome P450 system, which is the primary mode of metabolism for the majority of statins. Drugs that potentially interact with statins include fibrates, azol antifungals, macrolide antibiotics, antiarrhythmics, and protease inhibitors (Grade A).

- Bile acid-binding sequestrants may be used in combination with a statin for patients who fail to meet LDL-C target levels with either medication alone. The efficacy of the two agents together appears to be additive (Grade B).

- There is limited published experience in children with use of niacin and fibrates, which have been useful in treating adult patients with combined dyslipidemias (Grade C).

- Medication therapy is rarely needed for children with elevated TG who respond well to weight loss and lifestyle changes (Grade B). When TG levels exceed 500 mg/dL, patients are at risk for pancreatitis and require care in consultation with a lipid specialist (Grade B)[12].

High Blood Pressure

- In epidemiologic surveys of children and adolescents over the past 20 years, blood pressure levels are increasing, and the prevalence of hypertension and prehypertension are increasing, explained partially by the rise in obesity.

- Prehypertension progresses to hypertension at a rate of approximately 7% per year; hypertension persists in almost one-third of boys and one-fourth of girls on 2-year longitudinal follow-up.

- Breast-feeding and supplementation of formula with polyunsaturated fatty acids in infancy are both associated with lower blood pressure at follow-up.

- A DASH-style diet, which is rich in fruits, vegetables, low-fat or fat-free dairy products, whole grains, fish, poultry, beans, seeds and nuts, and lower in sweets and added sugars, fats, and red meats than the typical American diet is associated with lower blood pressure. The CHILD 1 diet combined with the DASH eating plan is an appropriate diet for children.

- Lower dietary sodium intake is associated with lower blood pressure levels in infants, children, and adolescents[2].

- Losartan, amlodipine, felodipine, fosinopril, lisinopril, metoprolol and valsartan can be added to the list of medications that are tolerated over short periods, and can reduce blood pressure in children from ages 6-17 years but predominantly are effective in adolescents. For African American children, greater doses of fosinopril may be needed for effective blood pressure control.

- In one study in small-for-gestational-age babies, a nutrient-enriched diet that promoted rapid weight gain was associated with higher blood pressure on follow-up in late childhood. This potential risk should be considered when such diets are selected in the clinical setting [12].

Overweight and Obese Children and Adolescents

Observational studies have identified sample populations that are at special risk for obesity as follows:

1. Children with BMI between the 85th and 95th percentiles
2. Children in whom there is a positive family history of obesity in one or both parents.
3. Early onset of increasing weight beyond that appropriate for increase in height. This can be identified early, beginning in the first year of life.
4. Excessive increase in weight during adolescence, particularly in black girls
5. Children who have been previously very active and become inactive or adolescents who are inactive in general. (An example would be a child who has previously participated in organized sports and has stopped, particularly in adolescence.)

Conclusions and Grading of the Evidence Review on Treatment of Obesity

- There is good evidence for the effectiveness of combined weight loss programs that included behavior change counseling, negative energy balance through diet, and increased physical activity in addressing obesity in children older than age 6 years with a BMI > 95th percentile and no comorbidities. (Grade A)
- No data were identified on weight loss programs for children younger than age 6 years[11].
- Dietary plans should be determined for each child, based on baseline body size, energy requirements for growth, and physical activity level. (Grade D)
- Increasing dietary fiber from corn bran, wheat flour, wheat bran, oat flakes, corn germ meal, or glucomannan does not significantly improve weight loss. (Grade A)
- Various diets have been inadequately studied as to their effects on obesity in children and adolescents including low glycemic load diets, low carbohydrate diets, fiber supplements, and protein-sparing modified fasts.
- Dropout rates are substantial for all weight treatment programs.
- No studies defining an appropriate rate for weight loss in any age group were identified. For those with BMI > **95th percentile without comorbidities** are recommend weight maintenance resulting in decreasing BMI as age increases. With BMI > **95th percentile with comorbidities** was recommend gradual weight

loss not exceeding 1 pound per month in children ages 2-11 years or 2 pounds per week in adolescents. (no grade)

- For adolescents with BMI far above 35 kg/m² and associated comorbidities, bariatric surgery on a research protocol in conjunction with a comprehensive lifestyle weight loss program improved weight loss, BMI, and other outcomes such as IR, glucose tolerance, and CV measures in small case series. (Grade D)[11].

Asthma

It is well established that asthma is a variable disease. Asthma can vary among individuals, and its progression and symptoms can vary within an individual's experience over time. The course of asthma over time, either remission or increasing severity, is commonly referred to as the natural history of the disease. It has been postulated that the persistence or increase of asthma symptoms over time is accompanied by a progressive decline in lung function. Recent research suggests that this may not be the case. Rather, the course of asthma may vary markedly between young children, older children and adolescents, and adults, and this variation is probably more dependent on age than on symptoms[2].

Most of the deficits in lung function growth observed in children who have asthma occur in children whose symptoms begin during the first 3 years of life, and the onset of symptoms after 3 years of age usually is not associated with significant deficits in lung function growth. Thus, a promising target for interventions designed to prevent deficits in lung function, and perhaps the development of more severe symptoms later in life, would be children who have symptoms before 3 years of age and seem destined to develop persistent asthma. However, it is important to distinguish this group from the majority of children who wheeze before 3 years of age and do not experience any more symptoms after 6 years of age. Until recently, no validated algorithms were available to predict which children among those who had asthma-like symptoms early in life would go on to have persistent asthma. Data obtained from long-term longitudinal studies of children who were enrolled at birth have generated such a predictive index. The studies first identified an index of risk factors for developing persistent asthma symptoms among children younger than 3 years of age who had more than three episodes of wheezing during the previous year. The index was then applied to a birth cohort that was followed through 13 years of age. 76% of the children who were diagnosed with asthma after 6 years of age had a positive asthma predictive

index before 3 years of age; 97% of the children who did not have asthma after 6 years of age had a negative asthma predictive index before 3 years of age. The index was subsequently refined and tested in a clinical trial to examine if treating children who had a positive asthma predictive index would prevent development of persistent wheezing. The asthma predictive index generated by these studies identifies the following risk factors for developing persistent asthma among children younger than 3 years of age who had four or more episodes of wheezing during the previous year: either 1) one of the following: parental history of asthma, a physician diagnosis of atopic dermatitis, or evidence of sensitization to aeroallergens, or 2) two of the following: evidence of sensitization to foods, $\geq 4\%$ peripheral blood eosinophilia, or wheezing apart from colds[14].

TESTS FOR SELF-CONTROL

1. The primary prevention of asthma includes all, except:
 - A. elimination of professional risk factors in the mother during pregnancy
 - B. breastfeeding;
 - C. top smoking
 - D. void the contact with blossom herbs and trees

2. Secondary prevention of asthma is indicated for:
 - A. ll children till 2 years old
 - B. hildren with sensibilization, and without symptoms of asthma
 - C. children with moderate exacerbation of asthma
 - D. children with acute respiratory viral infection more that 5 tmes per year

3. Note the right recommendation:
 - A. accination is excluded in the period of exacerbation of asthma;
 - B. vaccination is excluded in the period of moderate exacerbation of asthma
 - C. vaccinationis't excluded in the period of exacerbation of asthma
 - D. vaccination is excluded in the period of severe exacerbation of asthma

4. For all children older than 5 years old with recurrent wheezing wheezingwill be perform:
 - A. ECG
 - B. chest X-ray
 - C. empiricalinhalated corticosteroids

- D. spirometry, test with broncholytics
5. Attention deficit hyperactivity disorder is:
- A. psychological deviation in children till 5 years old, with difficult communication with other children, offense and isolation
 - B. neurological syndrome which started after 2 years old among children with intranatal trauma
 - C. a developmental condition of inattention and distractibility, with or without accompanying hyperactivity
 - D. psychological disorder among children from dysfunctional families; it is characterized by hyperkinesia and inattention
6. The obesity in children is:
- A. the condition with body mass excess $>8\%$ than age norm
 - B. the condition with BMI >30 .
 - C. the condition with BMI >25
 - D. the condition with body mass excess $> 5\%$ than age norm
7. The risk factors of children's obesity are all, except:
- A. the children who were born with body mass more than 4 kg
 - B. excessive feeding with high-caloric mixture
 - C. not correct supplements for infants
 - D. disturbance of water balance for child
8. The prevention of obesity includes all, except:
- A. active life style
 - B. fractional meal
 - C. intake of catabolic drugs
 - D. systematic gym
9. The specific diagnostics of allergic rhinitis in children are all, except:
- A. skin tests;
 - B. blood serology (IgE-antibodies for dust allergens);
 - C. provocation tests.
 - D. eliminational diet

10. The diagnostical skin tests with allergens are:
- A. 1 week before the test the antihistamin drugs are stopped
 - B. the dose of antihistamin drugs is increased
 - C. are performed in the period of blossom
 - D. don't change the dose of antihistamin drugs
11. The risk factors for the development of cardiovascular diseases in children are all except:
- A. Smoking
 - B. Obesity
 - C. Low physical activity
 - D. The large family.
12. At what age is it best to screen for lipid metabolism disorders in children?
- A. 7-8 years
 - B. 9-11 years
 - C. 14-15 years
 - D. 5-6 years.
13. What kind of diet should be recommended for children with lipid metabolism violations?
- A. CHILD-1
 - B. DASH
 - C. Dukan's diet
 - D. Mediterranean diet.
14. What are the drugs of choice for hypercholesterolemia correction in children?
- A. Omega-3 polyunsaturated fatty acids
 - B. Essential phospholipids
 - C. Statins
 - D. Fibrates.
15. Factors of arterial hypertension prevention for children include everything, except:

- A. Breastfeeding and enriching the diet with polyunsaturated fatty acids at the age of 1 year
 - B. Reducing the use of salt
 - C. Sufficient physical activity
 - D. Early breastfeeding abandonment.
16. The method of secondary prevention of rheumatism in children is:
- A. Rational treatment of angina and other streptococcal infections
 - B. Bicillin-5 750 000-1 500000 OD intramuscularly monthly for at least 5 years
 - C. Early diagnosis and treatment of foci of chronic infection
 - D. Rational mode of the day, full nutrition.
17. Postnatal prophylaxis of asthma and allergy involves the following measures:
- A. Breastfeeding and quit to smoke for parents
 - B. Inhalations
 - C. Non-carbohydrate diet
 - D. Hardening.
18. The risk of atopic dermatitis significantly increases in children with the presence of everything except:
- A. Pregnancy toxicosis
 - B. Rational nutrition
 - C. Monotonous carbohydrate food
 - D. Irrational drug therapy of women during pregnancy.
19. Pregnant women at risk (nephropathy, diabetes, hypertension, rheumatism, etc.), if they do not receive special multivitamin and mineral complexes, should be additionally prescribed with:
- A. Glucose solution
 - B. Antioxidants
 - C. Calcium preparations
 - D. Vitamin D in a dose of 500-1000 IU for 8 weeks.

20. The group of children at high risk of developing iron deficiency anemia includes all, except:

- A.Children born of multiple pregnancy
- B.All premature babies
- C. Children with jaundice of newborns
- D.Children born from pregnancy with complicated course of its second half (gestosis, fetoplacental insufficiency, complications of chronic diseases).

1	2	3	4	5	6	7	8	9	10
D	B	A	D	C	B	D	C	D	A
11	12	13	14	15	16	17	18	19	20
D	B	A	C	D	B	A	B	D	C

TOPIC 7

THE PREVENTIVE PROGRAM OF EPIDEMIC DISEASES AND VACCINATION PLAN FOR CHILDREN UNDER 5 YEARS OLD

I. Theme actuality. Every year, about 2.8 million children die in the first month of life, with 98% of these deaths occurring in developing countries. The prevention of infection diseases among children by vaccination is important.

Vaccines can prevent or ameliorate infectious disease. When a sufficiently large percentage of a population has been vaccinated, herd immunity results. The effectiveness of vaccination has been widely studied and verified. Vaccination is the most effective method of preventing infectious diseases; widespread immunity due to vaccination is largely responsible for the worldwide eradication of smallpox and the elimination of diseases such as polio, measles, and tetanus from much of the world [2].

Early success brought widespread acceptance, and mass vaccination campaigns have greatly reduced the incidence of many diseases in numerous geographic regions.

The WHO estimate that vaccination averts 2-3 million deaths per year (in all age groups), and up to 1.5 million children die each year due to diseases which could have been prevented by vaccination. They estimate that 29% of deaths of children under five years old in 2013 were vaccine preventable. In other developing parts of the world, they are faced with the challenge of having a decreased availability of resources and vaccinations. Countries such as those in Sub-Saharan Africa cannot afford to provide the full range of childhood vaccinations.

II. Study purposes: to know the risk factors and the prophylaxis of epidemic diseases in children, indications for vaccination.

III. The practical skills: to know the individual schedule of vaccination.

IV. The basic terms and notions, which have to be known by students:

Rheumatism or **rheumatic disorder** is an umbrella term for conditions causing chronic, often intermittent pain affecting the joints and/or connective tissue. The term "rheumatism", however, does not designate any specific disorder, but covers at least 200 different conditions. Sources dealing with rheumatism tend to focus on arthritis, but "rheumatism" may also refer to other conditions causing

chronic pain, grouped as "non-articular rheumatism", also known as "regional pain syndrome" or "soft tissue rheumatism". The term "Rheumatic Diseases" is used to refer to connective tissue disorders.

Rickets is defective mineralization or calcification of bones before epiphyseal closure in immature mammals due to deficiency or impaired metabolism of vitamin D, phosphorus or calcium, potentially leading to fractures and deformity. Rickets is among the most frequent childhood diseases in many developing countries. The predominant cause is a vitamin D deficiency, but lack of adequate calcium in the diet may also lead to rickets (cases of severe diarrhea and vomiting may be the cause of the deficiency). Although it can occur in adults, the majority of cases occur in children suffering from severe malnutrition, usually resulting from famine or starvation during the early stages of childhood. Osteomalacia is a similar condition occurring in adults, generally due to a deficiency of vitamin D after epiphyseal closure.

Atopic dermatitis (atopic eczema) is a type of inflammation of the skin (dermatitis). It results in itchy, red, swollen, and cracked skin. Clear fluid may come from the affected areas, which often thicken over time. The condition typically starts in childhood with changing severity over the years. In children under one year of age much of the body may be affected. As children get older, the back of the knees and front of the elbows are the most common areas affected. In adults the hands and feet are the most commonly affected areas. Scratching worsens symptoms and affected people have an increased risk of skin infections. Many people with atopic dermatitis develop hay fever or asthma.

Obesity is a medical condition in which excess body fat has accumulated to the extent that it may have a negative effect on health. The healthy BMI range varies with the age and sex of the child. Obesity in children and adolescents is defined as a BMI greater than the 95th percentile. Because childhood obesity often persists into adulthood and is associated with numerous chronic illnesses, children who are obese are often tested for hypertension, diabetes, hyperlipidemia, and fatty liver.

Screening, in medicine, is a strategy used in a population to identify the possible presence of an as-yet-undiagnosed disease in individuals without signs or symptoms. This can include individuals with pre-symptomatic or unrecognized symptomatic disease. As such, screening tests are somewhat unusual in that they

are performed on persons apparently in good health. Several types of screening exist: universal screening involves screening of all individuals in a certain category (for example, all children of a certain age).

Group of health – the group of complex assessed health of child or adolescent.

Vaccination is the administration of antigenic material (a vaccine) to stimulate an individual's immune system to develop adaptive immunity to a pathogen.

A **vaccine** is a biological preparation that provides active acquired immunity to a particular disease. A vaccine typically contains an agent that resembles a disease-causing microorganism and is often made from weakened or killed forms of the microbe, its toxins, or one of its surface proteins. The agent stimulates the body's immune system to recognize the agent as a threat, destroy it, and to further recognize and destroy any of the microorganisms associated with that agent that it may encounter in the future. Vaccines can be prophylactic (example: to prevent or ameliorate the effects of a future infection by a natural or "wild" pathogen), or therapeutic (e.g., vaccines against cancer are being investigated).

Tuberculosis is an infectious disease usually caused by the bacterium *Mycobacterium tuberculosis* (MTB). Tuberculosis generally affects the lungs, but can also affect other parts of the body. Most infections do not have symptoms, in which case it is known as latent tuberculosis. About 10% of latent infections progress to active disease which, if left untreated, kills about half of those infected. The classic symptoms of active tuberculosis are a chronic cough with blood-containing sputum, fever, night sweats, and weight loss.

Diphtheria is an infection caused by the bacterium *Corynebacterium diphtheriae*. Signs and symptoms may vary from mild to severe. They usually start two to five days after exposure. Symptoms often come on fairly gradually, beginning with a sore throat and fever. In severe cases, a grey or white patch develops in the throat. This can block the airway and create a barking cough as in croup. The neck may swell in part due to large lymph nodes. A form of diphtheria that involves the skin, eyes, or genitals also exists. Complications may include myocarditis, inflammation of nerves, kidney problems, and bleeding problems due to low blood platelets. Myocarditis may result in an abnormal heart rate and inflammation of the nerves may result in paralysis.

Tetanus (lockjaw) is an infection characterized by muscle spasms. In the most common type, the spasms begin in the jaw and then progress to the rest of the body. These spasms usually last a few minutes each time and occur frequently for three to four weeks. Spasms may be so severe that bone fractures may occur. Other symptoms may include fever, sweating, headache, trouble swallowing, high blood pressure, and a fast heart rate. Onset of symptoms is typically three to twenty-one days following infection. It may take months to recover. About 10% of those infected die.

Pertussis (whooping cough or 100-day cough) is a highly contagious bacterial disease. Initially, symptoms are usually similar to those of the common cold with a runny nose, fever, and mild cough. This is then followed by weeks of severe coughing fits. Following a fit of coughing, a high-pitched whoop sound or gasp may occur as the person breathes in. The coughing may last for 10 or more weeks, hence the phrase "100-day cough". A person may cough so hard that they vomit, break ribs, or become very tired from the effort. Children less than one year old may have little or no cough and instead have periods where they do not breathe. The time between infection and the onset of symptoms is usually seven to ten days. Disease may occur in those who have been vaccinated, but symptoms are typically milder.

Poliomyelitis (polio or infantile paralysis) is an infectious disease caused by the poliovirus. In about 0.5 % of cases there is muscle weakness resulting in an inability to move. This can occur over a few hours to a few days. The weakness most often involves the legs but may less commonly involve the muscles of the head, neck and diaphragm. Many but not all people fully recover. In those with muscle weakness about 2 to 5 % of children and 15 to 30 % of adults die. Another 25 % of people have minor symptoms such as fever and a sore throat and up to 5 % have headache, neck stiffness and pains in the arms and legs. These people are usually back to normal within one or two weeks. In up to 70 % of infections there are no symptoms. Years after recovery post-polio syndrome may occur, with a slow development of muscle weakness similar to that which the person had during the initial infection.

Integrated curing of children – is a complex curing approach to children under five, which include preventive and curing branches.

Breastfeeding is the feeding of babies and young children with milk from a woman's breast. The breastfeeding begin within the first hour of a baby's life and continue as often and as much as the baby wants. During the first few weeks of life babies may nurse roughly every 2-3 hours. The duration of a feeding is usually 10-15 minutes on each breast. Older children feed less often. Breastfeeding has a number of benefits to both mother and baby, which infant formula lacks.

Infant jaundice is a yellow discoloration in a newborn baby's skin and eyes. Infant jaundice occurs because the baby's blood contains an excess of bilirubin (bil-ih-ROO-bin), a yellow-colored pigment of red blood cells. It is a common condition, particularly in babies born before 38 weeks gestation (preterm babies) and some breast-fed babies. Infant jaundice usually occurs because a baby's liver isn't mature enough to get rid of bilirubin in the bloodstream. In some cases, an underlying disease may cause jaundice. Treatment of infant jaundice often isn't necessary, and most cases that need treatment respond well to noninvasive therapy. Although complications are rare, a high bilirubin level associated with severe infant jaundice or inadequately treated jaundice may cause brain damage.

Fever (pyrexia and febrile response) is defined as having a temperature above the normal range due to an increase in the body's temperature set-point. There is not a single agreed-upon upper limit for normal temperature with sources using values between 37.5 and 38.3 C. The increase in set-point triggers increased muscle contractions and causes a feeling of cold. This results in greater heat production and efforts to conserve heat. When the set-point temperature returns to normal, a person feels hot, becomes flushed, and may begin to sweat. Rarely a fever may trigger a febrile seizure. This is more common in young children. Fevers do not typically go higher than 41 to 42°C.

Anemia is a decrease in the total amount of red blood cells or hemoglobin in the blood, or a lowered ability of the blood to carry oxygen. When anemia comes on slowly, the symptoms are often vague and may include feeling tired, weakness, shortness of breath or a poor ability to exercise. Anemia that comes on quickly often has greater symptoms, which may include confusion, feeling like one is going to pass out, loss of consciousness, or increased thirst. Anemia must be significant before a person becomes noticeably pale. Additional symptoms may occur depending on the underlying cause.

V. The content of theme

Vaccination is the administration of antigenic material (a vaccine) to stimulate an individual's immune system to develop adaptive immunity to a pathogen.

Generically, the process of artificial induction of immunity, in an effort to protect against infectious disease, works by 'priming' the immune system with an 'immunogen'. Stimulating immune responses with an infectious agent is known as *immunization*. Vaccination includes various ways of administering immunogens.

Some vaccines are administered after the patient already has contracted a disease. Vaccines given after exposure to smallpox, within the first three days, are reported to attenuate the disease considerably, and vaccination up to a week after exposure probably offers some protection from disease or may reduce the severity of disease. The first rabies immunization was given by Louis Pasteur to a child after he was bitten by a rabid dog. Since then, it has been found that, in people with healthy immune systems, four doses of rabies vaccine over 14 days, wound care, and treatment of the bite with rabies immune globulin, commenced as soon as possible after exposure, is effective in preventing rabies in humans [2].

Most vaccines are given by hypodermic injection as they are not absorbed reliably through the intestines. Live attenuated polio, some typhoid, and some cholera vaccines are given orally to produce immunity in the bowel. While vaccination provides a lasting effect, it usually takes several weeks to develop, while passive immunity (the transfer of antibodies) has immediate effect.

History. It was Edward Jenner, a doctor in Berkeley in Gloucestershire, who established the procedure by introducing material from a cowpox vesicle on Sarah Nelmes, a milkmaid, into the arm of a boy named James Phipps. Two months later he inoculated the boy with smallpox and the disease did not develop. In 1798 Jenner published *An Inquiry into the Causes and Effects of the Variolae Vaccinae*, which coined the term *vaccination* and created widespread interest. Early attempts at confirmation were confounded by contamination with smallpox, but despite controversy within the medical profession and religious opposition to the use of animal material, by 1801 his report was translated into six languages and over 100000 people were vaccinated [11].

Vaccination policy refers to the health policy a government adopts in relation to vaccination.

Goals of vaccination policies

Immunity and herd immunity. Vaccination policies aim to produce immunity to preventable diseases. Besides individual protection from getting ill, some vaccination policies also aim to provide the community as a whole with herd immunity. Herd immunity refers to the idea that the pathogen will have trouble spreading when a significant part of the population has immunity against it. This protects those unable to get the vaccine due to medical conditions, such as immune disorders [12].

Each year, vaccination prevents between two and three million deaths, across all age groups, from diphtheria, tetanus, pertussis and measles.

The impact of immunization policy on vaccine-preventable diseases has been listed as one of the top public health achievements.

Eradication of disease. Malaria Clinic in Tanzania helped by SMS for Life program which organizes malaria vaccine delivery. With some vaccines, a goal of vaccination policies is to eradicate the disease – make it disappear from Earth altogether. The WHO coordinated the effort to eradicate smallpox globally through vaccination, the last naturally occurring case of smallpox was in Somalia in 1977. Endemic measles, mumps and rubella have been eliminated through vaccination in Finland. The WHO has targeted polio for eradication by the year 2018.

Individual versus group goals. Rational individuals will attempt to minimize the risk of illness, and will seek vaccination for themselves or their children if they perceive a high threat of disease and a low risk to vaccination. However, if a vaccination program successfully reduces the disease threat, it may reduce the perceived risk of disease enough so that an individual's optimal strategy is to encourage everyone but their family to be vaccinated, or (more generally) to refuse vaccination at coverage levels below those optimal for the community. Governments often allow exemptions to mandatory vaccinations for religious or philosophical reasons, but decreased rates of vaccination may cause loss of herd immunity, substantially increasing risks even to vaccinated individuals. However, mandatory vaccination raises ethical issues regarding parental rights and informed consent [22].

To eliminate the risk of disease outbreaks, at various times governments and other institutions established policies requiring vaccination. A few other countries

also follow this practice. Compulsory vaccination greatly reduces infection rates for associated diseases.

Common objections included government intervention in personal matters or that proposed vaccinations were not sufficiently safe. Many modern vaccination policies allow exemptions for people with compromised immune systems, allergies to vaccination components, or strongly held objections.

Vaccination is unique among de facto mandatory requirements in the modern era, requiring individuals to accept the injection of a medicine or medicinal agent into their bodies, and it has provoked a spirited opposition. This opposition began with the first vaccinations, has not ceased, and probably never will. From this realization arises a difficult issue: how should the mainstream medical authorities approach the anti-vaccination movement? A passive reaction could be construed as endangering the health of society, whereas a heavy-handed approach can threaten the values of individual liberty and freedom of expression that we cherish[2].

A **vaccination schedule** is a series of vaccinations, including the timing of all doses, which may be either recommended or compulsory, depending on the country of residence.

A vaccine is an antigenic preparation used to produce active immunity to a disease, in order to prevent or reduce the effects of infection by any natural or "wild" pathogen. Many vaccines require multiple doses for maximum effectiveness, either to produce sufficient initial immune response or to boost response that fades over time. For example, tetanus vaccine boosters are often recommended every 10 years. Vaccine schedules are developed by governmental agencies or physicians groups to achieve maximum effectiveness using required and recommended vaccines for a locality while minimizing the number of health care system interactions. Over the past two decades, the recommended vaccination schedule has grown rapidly and become more complicated as many new vaccines have been developed[23].

Some vaccines are recommended only in certain areas (countries, sub national areas, or at-risk populations) where a disease is common. For instance, yellow fever vaccination is on the routine vaccine schedule of French Guiana, is recommended in certain regions of Brazil but in the US is only given to travelers heading to countries with a history of the disease. In developing countries, vaccine

recommendations also take into account the level of health care access, the cost of vaccines and issues with vaccine availability and storage. Sample vaccination schedules discussed by the WHO show a developed country using a schedule which extends over the first five years of a child's life and uses vaccines which cost over \$700 including administration costs while a developing country uses a schedule providing vaccines in the first 9 months of life and costing only \$25. This difference is due to the lower cost of health care, the lower cost of many vaccines provided to developing nations, and that more expensive vaccines, often for less common diseases, are not utilized[5].

The WHO monitors vaccination schedules across the world, noting what vaccines are included in each country's program, the coverage rates achieved and various auditing measures. The table below shows the types of vaccines given in example countries. The WHO publishes on its website current vaccination schedules for all WHO member states.

Additional vaccines are given to individuals that are much more likely to come into contact with certain diseases due to their occupation or travel to regions where the disease is present (including members of the military), or only after potentially infectious exposure. Examples include rabies vaccine, anthrax vaccine, cholera vaccine and smallpox vaccine[2].

Vaccine Target	Transmission	World wide incidence (2004)	World wide deaths (2004) ¹	US A	U K	Germ any	Sau di Ara bia	In dia	Chi na
Hepatitis A	Fecal-oral	1,400,000	Unknown	Yes	Yes		Yes		Yes
Human papillomavirus	Sexual contact	493,000	247,000	Yes	Yes	Yes			
Influenza (seasonal)	Airborne droplet	3,000,000–5,000,000	250,000–500,000	Yes ¹	Yes ¹	Yes ¹			
Japanese	Mosquit	50,000	15,000					Yes	Yes

Vaccine Target	Transmission	World wide incidence (2004)	World wide deaths (2004) ¹	US A	U K	Germ any	Sau di Ara bia	In dia	Chi na
encephalitis	o							1	
Meningococcus	Airborn e droplet	Unkno wn	340,00 0	Yes	Yes	Yes	Yes ¹		Yes
Mumps	Airborn e droplet	544,00 0	Unkno wn	Yes	Yes	Yes	Yes		Yes
Pneumococcus	Airborn e droplet	14,500, 000	826,00 0	Yes	Yes	Yes	Yes ¹		
Rotavirus	Fecal- oral		527,00 0	Yes	Yes	Yes		Yes	
Rubella	Airborn e droplet	Unkno wn	196,00 0	Yes	Yes	Yes	Yes		Yes
Tick-borne encephalitis	Tick	5,000– 7,000	Unkno wn						
Typhoid fever	Fecal- oral	22,000, 000	216,00 0				Yes ¹		
Varicella	Airborn e	Unkno wn	Unkno wn	Yes		Yes	Yes		
Yellow fever	Mosquit o	200,00 0	30,000						
Polio	Fecal- oral	1,606	Unkno wn	IPV	IP V	IPV	IPV, OPV	OP V, IPV	OP V
Diphtheria	Saliva	34,000	5,000	Yes	Yes	Yes	Yes	Yes	Yes

Vaccine Target	Transmission	World wide incidence (2004)	World wide deaths (2004) ¹	US A	U K	Germany	Saudi Arabia	India	China
Haemophilus influenzae type b	Airborne droplet	2,000,000–3,000,000	386,000	Yes	Yes	Yes	Yes		
Hepatitis B	Bodily fluids	5,700,000 (acute)	105,000	Yes	Yes ¹	Yes	Yes	Yes ¹	Yes
Measles	Airborne	27,000,000	424,000	Yes	Yes	Yes	Yes	Yes	Yes
Pertussis	Airborne droplet	18,387,000	254,000	Yes	Yes	Yes	Yes	Yes	Yes
Tetanus	Penetrating injury	251,000	163,000	Yes	Yes	Yes	Yes	Yes	Yes
Tuberculosis	Airborne	7,782,000	1,464,000		Yes ¹		Yes	Yes	Yes

1. ^ At risk groups or certain populations only. See reference for more details.
2. ^ Incidence and deaths noted are for cervical cancer. Nearly 100% of cervical cancer is caused by HPV.

The Centers for Disease Control and Prevention has compiled a list of vaccines and their possible side effects. Allegations of vaccine injuries in recent decades have appeared in litigation in the U.S. Some families have won substantial awards from sympathetic juries, even though most public health officials have said that the claims of injuries were unfounded. In response, several vaccine makers stopped production, which the US government believed could be a threat to public health, so laws were passed to shield manufacturers from liabilities stemming from vaccine injury claims. The safety and side effects of multiple vaccines have been

tested in order to uphold the viability of vaccines as a barrier against disease. The Influenza vaccine was tested in controlled trials and proven to have negligible side effects equal to that of a placebo. Some concerns from families might have arisen from social beliefs and norms that cause them to mistrust or refuse vaccinations, contributing to this discrepancy in side effects that were unfounded [12].

TESTS FOR SELF-CONTROL:

1. For prevention of flu are used the following methods:
 - A. The vaccination, good food, quenching
 - B. Normal humidity in-door, ventilation, wet cleaning
 - C. Natural phytoncides in meal, plant adaptogens (Echinacea, Eleutherococcus) in autumn – winter time, polyvitamins 80%.
 - D. options A, B
 - E. All of mentioned above

2. Which types of vitamin and mineral supplement for children are used?
 - A. Replacement therapy, preventive, elimination (eliminate excess in the case of hypervitaminosis)
 - B. preventive/ cure
 - C. Replacement / elimination
 - D. All of mentioned above
 - E. options B, C

3. Which types of helminthiasis prevention for children are used?
 - A. General hygiene in family, vegetables and fruits washing, full food
 - B. Clean toys and flats; don't use the non-boiled water
 - C. Reduce contacts with wild animals
 - D. medicinal prevention
 - E. All of mentioned above

4. The causes of high sensitivity of children for viruses and infectious are the following:
 - A. Immaturity of immune system
 - B. High concentration of viruses

- C. Low body resistance against viruses
- D. options A,B,C
- E. options A,C

5. What are used as antigen material in the production of vaccines?

- A. Alive and killed microbes, crude and synthetic material
- B. Alive microbes
- C. killed microbes and synthetic material
- D. Alive and killed microbes

6. The boy of 2 years old without measles vaccination contacted with ill child in catarrhal period. The immunoglobulin was injected. When he can become ill?

- A. 21 days
- B. 17 days
- C. 28 days
- D. 14 days
- E. 7 days

7. During 2 weeks the child of 7years old has catarrh. There were disturbance of vaccination schedule. He had appointment with otolaryngologist because of guilty-bloody nasal excretion, maceration of the wings of the nose and upper lip. Rhinoscopy: whiten lace on the nosepiece. The oropharyngealmucosa is without changes. Which is the preliminary diagnosis?

- A. Adenoviruses
- B. rhinoviruses
- C. Diphtheria
- D. allergic rhinitis
- E. Sinusitis

8. Who can perform vaccination in the vaccination's room?

- A. Doctor, nurse, nurse with special annually training in vaccination's technique, with emergency skill in the case of vaccination's complications

- B. Nurse with special annually training in vaccination's technique, with emergency skill in the case of vaccination's complications
- C. Infectionist and family doctor with special annually training and special certificate, with emergency skill in the case of vaccination's complications
- D. family doctor or nurse
- E. Infectionist, family doctor and nurse, trained in vaccination's technique, with emergency skill in the case of vaccination's complications

9. If the physical exam before vaccination is obligatory?

- A. yes
- B. no
- C. Obligatory only for children with flu
- D. obligatory only for children under 3 years old
- E. No correct answer

10. Which categories are included in the calendar of vaccination?

- A. Vaccination by age, vaccination of children with deviation calendar of vaccination
- B. Vaccination of HIV-ill person, by health level
- C. Vaccination in the endemic and enzootic areas and by epidemic indications
- D. vaccination of children after allo/auto-transplantation
- E. All of mentioned above

11. Indications for the introduction of vaccines are all except:

- A. Routine vaccinations of certain age groups
- B. The threat of the spread of diseases in the city
- C. Treatment of a patient with an acute form of an infectious disease
- D. Travel to the country with an increased risk of infection.

12. Prescribe immediate treatment against rabies to individuals with a bite of any localization inflicted by domestic animals:

- A. Appoint only once
- B. Prescribe nothing
- C. Designate according to the scheme of vaccine prophylaxis only
- D. Immediately appoint a combined treatment with rabies immunoglobulin + vaccine.

13. Persons who are subject to urgent rabies prevention are all except?

- A. Person who got bitten by an unknown dog
- B. Person who was scratched by a home pet
- C. Person who ate raw wild boar thermally untreated meat
- D. Person who was processing the skin of found dead fox.

14. Actions carried out on the day of appointment due to preventive vaccinations include everything, except?

- A. Biochemical blood test
- B. Medical examination of the patient
- C. Thermometry
- D. Information on possible side effects.

15. Contraindications to the introduction of live measles and mumps vaccines:

- A. Artificial feeding of the child
- B. The presence of seizures in the anamnesis
- C. The presence of chronic gastritis
- D. Anaphylactic reactions to egg protein.

16. The scheme of vaccination and revaccination against rubella in children includes:

- A. Vaccination at 12 months and at 6 years
- B. Vaccination at 15 years
- C. Vaccination at 11 years
- D. Vaccination at 18 years of age.

17. Vaccines that are administered subcutaneously are:

- A. BCG
- B. DTP
- C. Measles vaccine
- D. Hepatitis B vaccine.

18. Purpose of the Mantoux test:

- A. Detection of postvaccinal humoral immunity
- B. Selection of persons for revaccination against tuberculosis
- C. Selection of newborns for primary vaccination against tuberculosis
- D. Definitive diagnosis of tuberculosis.

19. Routine vaccination with DTP vaccine is carried out at the age of:

- A. 3 months
- B. 6 months
- C. 7 months
- D. 12 months.

20. According to the technology of preparation, vaccines are divided into:

- A. Corpuscular living and recombinant
- B. Protein
- C. Bacterial
- D. Viral.

1	2	3	4	5	6	7	8	9	10
E	A	E	D	A	A	C	A	A	E
11	12	13	14	15	16	17	18	19	20
C	D	B	A	D	A	C	B	A	A

TOPIC 8

SYNDROMOLOGICAL CURING APPROACH FOR CHILDREN UNDER 5 YEARS OLD

I. Theme actuality. A child's risk of dying is highest in the first 28 days of life (the neonatal period). Improving the quality of antenatal care, care at the time of childbirth, and postnatal care for mothers and their newborns are all essential to prevent these deaths. Globally 2.6 million children died in the first month of life in 2016. There are approximately 7 000 newborn deaths every day, amounting to 46% of all child deaths under the age of 5-years.

Preterm birth, intrapartum-related complications (birth asphyxia or lack of breathing at birth), and infections cause most neonatal deaths. From the end of the neonatal period and through the first 5 years of life, the main causes of death are pneumonia, diarrhoea and malaria. Malnutrition is the underlying contributing factor, making children more vulnerable to severe diseases.

The world has made substantial progress in child survival since 1990. The global under-5 mortality rate has dropped by 56 per cent from 93 deaths per 1000 live births in 1990 to 41 in 2016. Nonetheless, accelerated progress will be needed in more than a quarter of all countries, to achieve the Sustainable Development Goal (SDG) target(1) on under-five mortality by 2030. Meeting the SDG target would reduce the number of under-5 deaths by 10 million between 2017 and 2030. Focused efforts are still needed in Sub-Saharan Africa and South East Asia to prevent 80 % of these deaths[2].

II. Study purposes: to know the principles of integrated curing of children, the work-up and interpretation of examination of medical regular check-up in out-patient setting.

III. The practical skills: to distinguish different clinical courses and complications in the case of syndromological curing of cough, breathing disorder, hyperthermia, disease of ear and throat, and anemia in children under 5 years age.

IV. The basic terms and notions, which have to be known by students:

Rheumatism or **rheumatic disorder** is an umbrella term for conditions causing chronic, often intermittent pain affecting the joints and/or connective tissue. The term "rheumatism", however, does not designate any specific disorder, but covers at least 200 different conditions. Sources dealing with rheumatism tend to

focus on arthritis, but "rheumatism" may also refer to other conditions causing chronic pain, grouped as "non-articular rheumatism", also known as "regional pain syndrome" or "soft tissue rheumatism". The term "Rheumatic Diseases" is used to refer to connective tissue disorders.

Rickets is defective mineralization or calcification of bones before epiphyseal closure in immature mammals due to deficiency or impaired metabolism of vitamin D, phosphorus or calcium, potentially leading to fractures and deformity. Rickets is among the most frequent childhood diseases in many developing countries. The predominant cause is a vitamin D deficiency, but lack of adequate calcium in the diet may also lead to rickets (cases of severe diarrhea and vomiting may be the cause of the deficiency). Although it can occur in adults, the majority of cases occur in children suffering from severe malnutrition, usually resulting from famine or starvation during the early stages of childhood.

Osteomalacia is a similar condition occurring in adults, generally due to a deficiency of vitamin D after epiphyseal closure.

Atopic dermatitis (atopic eczema) is a type of inflammation of the skin (dermatitis). It results in itchy, red, swollen, and cracked skin. Clear fluid may come from the affected areas, which often thicken over time. The condition typically starts in childhood with changing severity over the years. In children under one year of age much of the body may be affected. As children get older, the back of the knees and front of the elbows are the most common areas affected. In adults the hands and feet are the most commonly affected areas. Scratching worsens symptoms and affected people have an increased risk of skin infections. Many people with atopic dermatitis develop hay fever or asthma.

Tuberculosis is an infectious disease usually caused by the bacterium *Mycobacterium tuberculosis* (MTB). Tuberculosis generally affects the lungs, but can also affect other parts of the body. Most infections do not have symptoms, in which case it is known as latent tuberculosis. About 10% of latent infections progress to active disease which, if left untreated, kills about half of those infected. The classic symptoms of active tuberculosis are a chronic cough with blood-containing sputum, fever, night sweats, and weight loss.

Diphtheria is an infection caused by the bacterium *Corynebacterium diphtheriae*. Signs and symptoms may vary from mild to severe. They usually start two to five days after exposure. Symptoms often come on

fairly gradually, beginning with a sore throat and fever. In severe cases, a grey or white patch develops in the throat. This can block the airway and create a barking cough as in croup. The neck may swell in part due to large lymph nodes. A form of diphtheria that involves the skin, eyes, or genitals also exists. Complications may include myocarditis, inflammation of nerves, kidney problems, and bleeding problems due to low blood platelets. Myocarditis may result in an abnormal heart rate and inflammation of the nerves may result in paralysis.

Tetanus (lockjaw) is an infection characterized by muscle spasms. In the most common type, the spasms begin in the jaw and then progress to the rest of the body. These spasms usually last a few minutes each time and occur frequently for three to four weeks. Spasms may be so severe that bone fractures may occur. Other symptoms may include fever, sweating, headache, trouble swallowing, high blood pressure, and a fast heart rate. Onset of symptoms is typically three to twenty-one days following infection. It may take months to recover. About 10% of those infected die.

Pertussis (whooping cough or 100-day cough) is a highly contagious bacterial disease. Initially, symptoms are usually similar to those of the common cold with a runny nose, fever, and mild cough. This is then followed by weeks of severe coughing fits. Following a fit of coughing, a high-pitched whoop sound or gasp may occur as the person breathes in. The coughing may last for 10 or more weeks, hence the phrase "100-day cough". A person may cough so hard that they vomit, break ribs, or become very tired from the effort. Children less than one year old may have little or no cough and instead have periods where they do not breathe. The time between infection and the onset of symptoms is usually seven to ten days. Disease may occur in those who have been vaccinated, but symptoms are typically milder.

Poliomyelitis (polio or infantile paralysis) is an infectious disease caused by the poliovirus. In about 0.5 % of cases there is muscle weakness resulting in an inability to move. This can occur over a few hours to a few days. The weakness most often involves the legs but may less commonly involve the muscles of the head, neck and diaphragm. Many but not all people fully recover. In those with muscle weakness about 2 to 5 % of children and 15 to 30 % of adults die. Another 25 % of people have minor symptoms such as fever and a sore throat and up to 5 % have headache, neck stiffness and pains in the arms and legs. These people are

usually backed to normal within one or two weeks. In up to 70 % of infections there are no symptoms. Years after recovery post-polio syndrome may occur, with a slow development of muscle weakness similar to that which the person had during the initial infection.

Breastfeeding is the feeding of babies and young children with milk from a woman's breast. The breastfeeding begins within the first hour of a baby's life and continues as often and as much as the baby wants. During the first few weeks of life babies may nurse roughly every 2-3 hours. The duration of a feeding is usually 10-15 minutes on each breast. Older children feed less often. Breastfeeding has a number of benefits to both mother and baby, which infant formula lacks.

Infant jaundice is a yellow discoloration in a newborn baby's skin and eyes. Infant jaundice occurs because the baby's blood contains an excess of bilirubin (bil-ih-ROO-bin), a yellow-colored pigment of red blood cells. It is a common condition, particularly in babies born before 38 weeks gestation (preterm babies) and some breast-fed babies. Infant jaundice usually occurs because a baby's liver isn't mature enough to get rid of bilirubin in the bloodstream. In some cases, an underlying disease may cause jaundice. Treatment of infant jaundice often isn't necessary, and most cases that need treatment respond well to noninvasive therapy. Although complications are rare, a high bilirubin level associated with severe infant jaundice or inadequately treated jaundice may cause brain damage.

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going to pass out, loss of consciousness, or increased thirst. Anemia must be significant before a person becomes noticeably pale. Additional symptoms may occur depending on the underlying cause.

V. The content of theme

Newborns

2.6 million babies die every year in their first month of life and a similar number are stillborn. Within the first month, up to half of all deaths occur within the first 24 hours of life, and 75% occur in the first week. The 48 hours immediately following birth is the most crucial period for newborn survival. This is when the mother and child should receive quality follow-up care to prevent and treat illness [2].

Globally, the number of neonatal deaths declined from 5.1 million in 1990 to 2.6 million in 2016. However, the decline in neonatal mortality from 1990 to 2016 has been slower than that of post-neonatal under-5 mortality: 49% compared with 62% globally. The relative decline in the neonatal mortality rate was slower in sub-Saharan Africa. The modest decline in neonatal mortality in this region was offset by an increasing number of births so that the number of neonatal deaths remained almost the same from 1990 to 2016. Moreover, 52 countries need to accelerate progress to reach the SDG target of a neonatal mortality rate of 12 deaths per 1000 live births by 2030.

Prior to birth, a mother can increase her child's chance of survival and good health by attending antenatal care consultations, being immunized against tetanus, and avoiding smoking and use of alcohol.

At the time of birth, a baby's chance of survival increases significantly with delivery in a health facility in the presence of a skilled birth attendant. After birth, essential care of a newborn should include:

- ensuring that the baby is breathing;
- starting the newborn on exclusive breastfeeding right away;
- keeping the baby warm; and
- washing hands before touching the baby [2].

Identifying and caring for illnesses in a newborn is very important, as a baby can become very ill and die quickly if an illness is not recognized and treated appropriately. Sick babies must be taken immediately to a trained health care provider.

Children under the age of 5

Substantial global progress has been made in reducing child deaths since 1990. The total number of under-5 deaths worldwide has declined from 12.6 million in 1990 to 5.6 million in 2016 – 15 000 every day compared with 35 000 in 1990. Since 1990, the global under-5 mortality rate has dropped 56%, from 93 deaths per 1 000 live births in 1990 to 41 in 2016[2].

Although the world as a whole has been accelerating progress in reducing the under-5 mortality rate, disparities exist in under-5 mortality across regions and countries. Sub-Saharan Africa remains the region with the highest under-5 mortality rate in the world, with 1 child in 13 dying before his or her fifth birthday. Inequity also persists within countries geographically or by social-economic status. The latest mortality estimates by wealth quintile show that in 99 low and middle income countries (2), under-5 mortality among children born in the poorest households is on average twice that of children born in the wealthiest households. Eliminating this gap between mortality in the poorest and wealthiest households would have saved 2 million lives in 2016.

More than half of under-5 child deaths are due to diseases that are preventable and treatable through simple, affordable interventions. Strengthening health systems to provide such interventions to all children will save many young lives[15].

Malnourished children, particularly those with severe acute malnutrition, have a higher risk of death from common childhood illness such as diarrhoea, pneumonia, and malaria. Nutrition-related factors contribute to about 45% of deaths in children under 5 years of age [12].

Leading causes of death in post-neonatal children: risk factors and response

Cause of death	Risk factors	Prevention	Treatment
Pneumonia, or other acute respiratory infections	Low birth weight	Vaccination	Appropriate care by a trained health provider
	Malnutrition	Adequate nutrition	
	Non-breastfed	Exclusive breastfeeding	

Cause of death	Risk factors	Prevention	Treatment
	children Overcrowded conditions	Reduction of household air pollution	Antibiotics Oxygen for severe illness
Childhood diarrhoea	Non-breastfed children Unsafe drinking water and food Poor hygiene practices Malnutrition	Exclusive breastfeeding Safe water and food Adequate sanitation and hygiene Adequate nutrition Vaccination	Low-osmolarity oral rehydration salts (ORS) Zinc supplements

Prevention with vaccines

Vaccines are available for some of the most deadly childhood diseases, such as measles, polio, diphtheria, tetanus, and pertussis, pneumonia due to *Haemophilus influenzae* type B and *Streptococcus pneumoniae* and diarrhoea due to rotavirus. Vaccines can protect children from illness and death [19].

Emerging priorities for children's health

Congenital anomalies, injuries, and non-communicable diseases (chronic respiratory diseases, acquired heart diseases, childhood cancers, diabetes, and obesity) are the emerging priorities in the global child health agenda. Congenital anomalies affect an estimated 1 in 33 infants, resulting in 3.2 million children with disabilities related to birth defects every year. The global disease burden due to non-communicable diseases affecting children in childhood and later in life is rapidly increasing, even though many of the risk factors can be prevented.

Injuries (including road traffic injuries, drowning, burns, and falls) rank among the top causes of death and lifelong disability among children aged 5-14 years. The patterns of death in older children and adolescents reflect the underlying

risk profiles of the age groups, with a shift away from infectious diseases of childhood and towards accidents and injuries, notably drowning and road traffic injuries for older children and adolescents.

Similarly, the worldwide number of overweight children increased, including in countries with a high prevalence of childhood undernutrition[20].

Global response: Sustainable Development Goal 3

The Sustainable Development Goals (SDGs) adopted by the United Nations in 2015 aim to ensure healthy lives and promote well-being for all children. The SDG goal 3 target 3.2 is to end preventable deaths of newborns and under-5 children by 2030. These are two targets:

- reduce newborn mortality to at least as low as 12 per 1000 live births in every country (SDG 3.2); and
- reduce under-five mortality to at least as low as 25 per 1000 live births in every country (SDG 3,2).

Target 3.2 is closely linked with target 3.1, to reduce the global maternal mortality ratio to less than 70 deaths per 100 000 live births, and target 2.2 on ending all forms of malnutrition, as malnutrition is a frequent cause of death for under-5 children. These have been translated into the new "*Global Strategy for Women's, Children's and Adolescent's Health*" (Global Strategy), which calls for ending preventable child deaths while addressing emerging child health priorities.

The plan to achieve the SDG targets, has been translated into several global initiatives. Member States need to set their own targets and develop specific strategies to reduce child mortality and monitor their progress towards the reduction[22].

WHO response: WHO calls on Member States to address health equity through universal health coverage so that all children are able to access essential health services without undue financial hardship. Moving from "business as usual" to innovative, multiple, and tailored approaches to increase access, coverage, and quality of child health services will require strategic direction and an optimal mix of community and facility (based care. Health sector and multisectoral efforts are also needed to overcome the inequalities and the social determinants of health.

Out-patient curing of children age 1 week - 2 month

1. The assessment of babies:

- diarrhea

- the breastfeeding, low body mass
- the immunization status
- other condition[2].

2. The assessment of symptoms. The presence of disease or local bacterial infection is assessed by:

- lack of breastfeeding;
- seizure;
- increased respiration rate (more than 60 per 1 min.);
- significant chest retraction;
- movement after stimulation / absence of independent movements;
- fever (axillar temperature more than 37,5°C or rectal more than 38,0°C) or hypothermia (axillar temperature less than 35,5°C, rectal less than 36,0°C);
- hyperemia around umbilical wound or manure;
- pustules on the skin[16].

Neonatal jaundice or **neonatal hyperbilirubinemia**, or **neonatal icterus**, attributive adjective: **icteric**, is a yellowing of the skin and other tissues of a newborn infant. A bilirubin level of more than 85 $\mu\text{mol/l}$ (5 mg/dL) leads to a jaundiced appearance in neonates whereas in adults a level of 34 $\mu\text{mol/l}$ (2 mg/dL) is needed for this to occur. In newborns, jaundice is detected by blanching the skin with pressure applied by a finger so that it reveals underlying skin and subcutaneous tissue. Jaundiced newborns have yellow discoloration of the white part of the eye, and yellowing of the face, extending down onto the chest.

Neonatal jaundice can make the newborn sleepy and interfere with feeding. Extreme jaundice can cause permanent brain damage from kernicterus.

In neonates, the yellow discoloration of the skin is first noted in the face and as the bilirubin level rises proceeds caudal to the trunk and then to the extremities. This condition is common in newborns affecting over half (50–60%) of all babies in the first week of life[2].

Infants whose palms and soles are yellow, have serum bilirubin level over 255 $\mu\text{mol/l}$ (15mg/dL) (more serious level). Studies have shown that trained examiners assessment of levels of jaundice show moderate agreement with icterometer bilirubin measurements. In infants, jaundice can be measured using invasive or non-invasive methods.

Any of the following features characterizes pathological jaundice:

- Clinical jaundice appearing in the first 24 hours or greater than 14 days of life.
- Increases in the level of total bilirubin by more than $8,5\mu\text{mol/l}$ (0.5mg/dL) per hour or ($85\mu\text{mol/l}$) 5mg/dL per 24 hours.
- Total bilirubin more than $331.5\mu\text{mol/l}$ (19.5mg/dL) (hyperbilirubinemia).
- Direct bilirubin more than $34\mu\text{mol/l}$ (2.0mg/dL)[23].

Diarrhea is the sudden increase in the frequency and looseness of stools. Mild diarrhea is the passage of a few loose or mushy stools. Severe diarrhea is the passage of many watery stools. Watery stools that occur every hour are definitely severe diarrhea. The best indicator of the severity of the diarrhea is its frequency or blood in the stools.

The main complication of diarrhea is dehydration from the loss of too much fluid from the body. Symptoms of dehydration are a dry mouth, the absence of tears, infrequent urination (for example, none in 8 hours), and a darker, concentrated urine. The main goal of diarrhea treatment is to prevent dehydration.

Increased fluids and dietary changes are the main treatment for diarrhea.

The child's healthcare provider has to be call if:

- There are signs of dehydration (no urine in more than 8 hours, very dry mouth, no tears).
- Any blood appears in the diarrhea.
- The diarrhea is severe (more than 8 stools in the last 8 hours).
- The diarrhea is watery and your child vomits repeatedly.
- Your child starts acting very sick[2].

The breastfeeding

Early breastfeeding is associated with fewer nighttime feeding problems. Early skin-to-skin contact between mother and baby improves breastfeeding outcomes and increases cardio-respiratory stability. Breastfeeding aids general health, growth and development in the infant. Infants who are not breastfed are at mildly increased risk of developing acute and chronic diseases, including lower respiratory infection, ear infections, bacteremia, bacterial meningitis, botulism, urinary tract infection and necrotizing enterocolitis. Breastfeeding may protect against sudden infant death syndrome, insulin-dependent diabetes mellitus, Crohn's disease, ulcerative colitis, lymphoma, allergic diseases, digestive diseases, obesity,

develop diabetes, or childhood leukemia later in life and may enhance cognitive development[2].

The average breastfed baby doubles its birth weight in 5-6 months. By one year, a typical breastfed baby weighs about 2½ times its birth weight. At one year, breastfed babies tend to be leaner than formula-fed babies, which improve long-run health.

The breastfed and formula-fed groups had similar weight gain during the first 3 months, but the breastfed babies began to drop below the median beginning at 6 to 8 months and were significantly lower weight than the formula-fed group between 6 and 18 months. Length gain and head circumference values were similar between groups, suggesting that the breastfed babies were leaner.

Extended breastfeeding means breastfeeding after the age of 12 or 24 months, depending on the source[12].

The control under vaccination of babies. For newborns, breast milk can help protect against many diseases. It contains antibodies passed from the mother. However, this immunity wears off within a year, and many children aren't breastfed to begin with. In both cases, vaccines can help protect babies and small children from disease. They can also help prevent the spread of disease to older children and adults.

Vaccines imitate infection of a certain disease in the body. This prompts the immune system to develop weapons called antibodies. These antibodies fight the disease that the vaccine is meant to prevent. With them in place, your body can defeat any future infection with the disease[11].

The recommended vaccination timeline:

	Birth	2 month s	4 month s	6 months	1 year	15–18 month s	4–6 years
HepB	1 st dose	2 nd dose (age 1-2 mo)	—	3 rd dose (age 6–18 months)	—	—	—
RV	—	1 st dose	2 nd dose	3 rd dose (in some cases)	—	—	—

DTaP	—	1 st dose	2 nd dose	3 rd dose	—	4 th dose	5 th dose
Hib	—	1 st dose	2 nd dose	3 rd dose (in some cases)	Booster dose (age 12–15 mo)	—	—
PCV	—	1 st dose	2 nd dose	3 rd dose	4 th dose (age 12–15 months)	—	—
IPV	—	1 st dose	2 nd dose	3 rd dose (age 6–18 months)	—	—	4 th dose
Influenza	—	—	—	Yearly vaccination (seasonally as appropriate)			
MMR	—	—	—	—	1 st dose (age 12–15 months)	—	2 nd dose
Varicella	—	—	—	—	—	—	
HepA	—	—	—	—	2 dose series (age 12–24 mo)	—	—

Out-patient curing of children age 2 month- 5 years

1. Medical history: from parents of child (symptoms, food, medical care).

2. Physical exam

Red flag: seizure, conscious, breastfeeding, vomiting.

3. Main symptoms:

1) cough or breathing disorder;

2) diarrhea;

3) hypertermia;

4) problem with ear.

A cough in children may be either a normal physiological reflex or due to an underlying cause. In healthy children it may be normal in the absence of any disease to cough ten times a day. The most common cause of an acute or subacute cough is a viral respiratory tract infection. In adults with a chronic cough, i.e. a cough longer than 8 weeks, more than 90% of cases are due to post-nasal drip, asthma, eosinophilic bronchitis, and gastroesophageal reflux disease. The causes of chronic cough are similar in children with the addition of bacterial bronchitis[11].

The treatment of a cough in children is based on the underlying cause. In children half of cases go away without treatment in 10 days and 90% in 25 days.

According to the American Academy of Pediatrics the use of cough medicine to relieve cough symptoms is supported by little evidence and thus not recommended for treating cough symptoms in children. There is tentative evidence that the use of honey is better than no treatment or diphenhydramine in decreasing coughing. It does not alleviate coughing to the same extent as dextromethorphan. A trial of antibiotics or inhaled corticosteroids may be tried in children with a chronic cough in an attempt to treat protracted bacterial bronchitis or asthma respectively

Diarrhea, also spelled **diarrhoea**, is the condition of having at least three loose or liquid bowel movements each day. It often lasts for a few days and can result in dehydration due to fluid loss. Signs of dehydration often begin with loss of the normal stretchiness of the skin and irritable behaviour. This can progress to decreased urination, loss of skin color, a fast heart rate, and a decrease in responsiveness as it becomes more severe. Loose but non-watery stools in babies who are breastfed, however, may be normal.

Acute diarrhea is most commonly due to viral gastroenteritis with rotavirus, which accounts for 40% of cases in children under five[12].

In many cases of diarrhea, replacing lost fluid and salts is the only treatment needed. This is usually by mouth –oral rehydration therapy– or, in severe cases, intravenously. WHO recommends that children with diarrhea continue to eat as sufficient nutrients are usually still absorbed to support continued growth and weight gain, and that continuing to eat also speeds up recovery of normal intestinal functioning.

Medications such as loperamide and bismuth subsalicylate may be beneficial; however they may be contraindicated in certain situations.

FEVER

Fever is a normal response to a variety of conditions, the most common of which is infection. Fever occurs when the body's temperature is elevated as a result of the body's thermostat being reset to a higher-than-usual temperature[2].

Nearly every child will develop a fever at some point. The challenge for parents is to know when to be concerned. This topic review will discuss the definition of a fever, how to accurately measure a child's temperature, how and when to treat fever, and signs and symptoms that require further evaluation.

Because of the normal variation in body temperature, there is no single value that is defined as fever. In general, a fever means a temperature above 100.4°F (38°C). You might get slightly different numbers depending on how you take your child's temperature – oral (mouth), axillary (armpit), ear, forehead, or rectal.

Axillary, ear, and forehead temperature measurements are easier to obtain than rectal or oral temperatures, but they are less accurate and may need to be confirmed rectally or orally in certain children[18].

Fever causes

Infection is the most common cause of fever in children. Common viral and bacterial illnesses like colds, gastroenteritis, ear infections, croup, bronchiolitis, and urinary tract infections are the most likely illnesses to cause fever.

There is little or no scientific evidence to support the widespread belief that teething causes fever. Although it is difficult to disprove this notion completely, alternative causes of fever should always be sought and temperatures above 102°F (38.9°C) should never be attributed to teething.

Bundling a child who is less than three months old in too many clothes or blankets can increase the child's temperature slightly. However, a rectal temperature of 101°F (38.5°C) or greater is not likely to be related to bundling and should be evaluated.

Some childhood immunizations can cause fever. The timing of the fever varies, depending upon which vaccination was given.

The best way to measure a child's temperature depends upon several factors. In all children, a rectal temperature is the most accurate. However, it is possible to accurately measure the temperature in the mouth (for children older than four or five years) when the proper technique is used[17].

Temperatures measured in the armpit are less accurate but may be useful as a first test in an infant who is younger than three months or an older child who cannot hold the thermometer under his or her tongue. If the armpit temperature is over 99°F (37.2°C), the rectal temperature should be measured. Temperatures measured in the ear or on the forehead also are less accurate than temperatures measured rectally or orally and may need to be confirmed by one of these methods.

It is not accurate to measure a child's temperature by feeling the child's skin. This is called a tactile temperature, and it is highly dependent upon the temperature of the person who is feeling the child's skin[12].

Glass versus digital thermometers - Digital thermometers are inexpensive, widely available, and the most accurate way to measure temperature. A variety of styles are available.

Glass thermometers that contain mercury are not recommended due to the potential risks of exposure to mercury (which is toxic) if the thermometer is broken. If a digital thermometer is not available, be sure to carefully "shake down" the glass thermometer before use. Instructions for disposing of thermometers that contain mercury are available online (www.epa.gov/mercury/spills/index.htm).

Other types of thermometers are available, including plastic strip and pacifier thermometers. However, these are not as accurate as digital thermometers and are not recommended[2].

Evaluation recommended: A health care provider should be consulted in the following situations:

- Infants who are less than three months of age who have a rectal temperature of 100.4°F (38°C) or greater, regardless of how the infant appears (eg, even well-appearing young infants should be evaluated). These patients should not receive fever medication (eg, acetaminophen) until they have consulted with their health care provider.

- Children who are three months to three years who have a rectal temperature of 100.4°F (38°C) or greater for more than three days or who appear ill (eg, fussy, clingy, refusing to drink fluids).

- Children who are 3 to 36 months who have a rectal temperature of 102°F (38.9°C) or greater[2].

- Children of any age whose oral, rectal, tympanic membrane, or forehead temperature is 104°F (40°C) or greater or whose axillary temperature is 103°F (39.4°C) or greater.

- Children of any age who have a febrile seizure. Febrile seizures are convulsions that occur when a child (between six months and six years of age) has a temperature greater than 100.4° F (38°C).

- Children of any age who have recurrent fevers for more than seven days, even if the fevers last only a few hours.

- Children of any age who have a fever and have a chronic medical problem such as heart disease, cancer, lupus, or sickle cell anemia.

- Children who have a fever as well as a new skin rash[11].

Treatment recommended. Treatment of fever is recommended if a child has an underlying medical problem, including diseases of the heart, lung, brain, or nervous system. In children who have had febrile seizures in the past, treatment of fever has not been shown to prevent seizures but is still a reasonable precaution.

Treatment of fever may be helpful if the child is uncomfortable, although it is not necessary.

Treatment not required. In most cases, it is not necessary to treat a child's fever. A child older than three months who has a rectal temperature less than 102°F (38.9°C) and who is otherwise healthy and acting normally does not require treatment for fever.

Parents who are unsure if their child's fever needs treatment should contact the child's health care provider[17].

Fever treatment options

Medications - The most effective way to treat fever is to use a medication such as acetaminophen or ibuprofen. These treatments can reduce the child's discomfort and lower the child's temperature by 2 to 3°F (1 to 1.5°C). Aspirin is not recommended for children under age 18 years due to concerns that it can cause a rare but serious illness known as Reye syndrome.

Acetaminophen may be given every four to six hours as needed but should not be given more than five times in a 24-hour period. Acetaminophen should not be used in children younger than three months of age without consultation with a health care provider. The dose of acetaminophen should be calculated based upon the child's weight (not age)[2].

Ibuprofen may be given every six hours. Ibuprofen should not be used in children younger than six months of age. The dose of ibuprofen should be calculated based upon the child's weight (not age).

Giving combinations of acetaminophen and ibuprofen or alternating acetaminophen and ibuprofen increases the chance of giving the wrong dose of one or the other of the medications.

Fever-reducing medications should only be given as needed and discontinued once bothersome symptoms have resolved[16].

Increase fluids - having fever can increase a child's risk of becoming dehydrated. To reduce this risk, parents should encourage their child to drink an adequate amount of fluids. Children with fever may not feel hungry, and it is not necessary to force them to eat. However, fluids such as milk (cow's or breast), formula, and water should be offered frequently. Older children may eat flavored gelatin, soup, or frozen popsicles. If the child is unwilling or unable to drink fluids for more than a few hours, the parent should consult the child's health care provider.

Rest - Having a fever causes most children to feel tired and achy. During this time, parents should encourage their child to rest as much as the child wants. It is not necessary to force the child to sleep or rest if he or she begins to feel better. Children may return to school or other activities when the temperature has been normal for 24 hours.

Sponging and baths - Sponging is not as effective as medications for fever and generally is not recommended. Alcohol should not be used for sponging because of the risk of toxicity if it is absorbed through the skin[12].

Ear infections

Ear infections, also called otitis media, are a common problem in children. About 50 percent of infants have at least one ear infection by their first birthday. Ear infections can cause pain in the ear, fever, and temporary hearing loss and general signs such as loss of appetite and irritability. Some children get better without specific antibiotic treatment but most young infants benefit from use of an antimicrobial agent.

This topic will review the definition, causes, symptoms, diagnosis, treatment, and potential complications of ear infections in infants and children.

Ear infection is also known as acute otitis media (otitis = ear, media = middle). Otitis media is an infection of the middle section of the ear. Most of the time it is caused by bacteria that nearly all children have in their nose and throat at one time or another.

Ear infections most often develop after a viral respiratory tract infection, such as a cold or the flu. These infections can cause swelling of the mucous membranes of the nose and throat, and diminish normal host defenses such as clearance of bacteria from the nose, increasing the amount of bacteria in the nose. Viral respiratory tract infections also can impair Eustachian tube function. Normal Eustachian tube function is important for maintaining normal pressure in the ear. Impaired Eustachian tube function changes the pressure in the middle ear (like when you are flying in an airplane). Fluid (called an effusion) may form in the middle ear and bacteria and viruses follow, resulting in inflammation in the middle ear. The increased pressure causes the eardrum to bulge, leading to the typical symptoms of fever, pain, and fussiness in young children.

Symptoms of an ear infection in adolescents and older children may include ear aching or pain and temporary hearing loss. These symptoms usually come on suddenly[2].

In infants and young children, symptoms of an ear infection can include:

- Fever (temperature higher than 100.4°F or 38°C, see the table for how to measure a child's temperature)
- Pulling on the ear
- Fussiness or irritability
- Decreased activity
- Lack of appetite or difficulty eating
- Vomiting or diarrhea
- Draining fluid from the outer ear (called otorrhea)

Treatment of an ear infection may include:

- Antibiotics
- Medicines to treat pain and fever
- Observation
- A combination of the above

The "best" treatment depends on the child's age, history of previous infections, degree of illness, and any underlying medical problems[11].

Antibiotics are routinely given to infants who are younger than 24 months or who have high fever or infection in both ears. Children who are older than 24 months and have mild symptoms may be treated with an antibiotic or often are observed to see if they improve without antibiotics[2].

Observation.In some cases, your child's doctor or nurse will recommend that you watch your child at home before starting antibiotics; this is called observation. Observation can help to determine whether antibiotics are needed.

Observation may be recommended in these situations:

- If the child is older than 24 months
- If ear pain and fever are not severe
- If the child is otherwise healthy

You can give pain-relieving medicines during observation to ease pain.

If your child is being observed rather than treated with antibiotics, you will need to call or go back to the doctor or nurse's office after 24 hours for follow-up. If your child's pain or fever continues or worsens, antibiotics are usually recommended; observation may continue if the child is improving.

Pain management - Pain-relieving medicines, including ibuprofen and acetaminophen, may be used to reduce discomfort[20].

Complementary and alternative medical treatments - There are a wide variety of complementary and alternative medical (CAM) treatments advertised to treat ear infections. These may include homeopathic, naturopathic, chiropractic, and acupuncture treatments.

There are few scientific studies of CAM treatments for ear infection, and even fewer studies that show CAM treatments to be effective. As a result, these treatments are not recommended for ear infections in children.

Decongestants and antihistamines - Cough and cold medicines (which usually include a decongestant or antihistamine) have not been proven to speed healing or reduce complications of ear infections in children. In addition, these treatments have side effects that can be dangerous. Neither decongestants nor antihistamines are recommended for children with ear infections[21].

Follow-up - Your child's symptoms should improve within 24 to 48 hours whether or not antibiotics were prescribed. If your child does not improve after 48 hours or gets worse, call your doctor or nurse for advice. Although fever and discomfort may continue even after starting antibiotics, the child should get a little

better every day. If your child appears more ill than when seen by his or her health care provider, contact the provider as soon as possible.

Children who are younger than two years and those who have language or learning problems should have a follow-up ear exam two to three months after being treated for an ear infection. These children are at risk for delays in learning to speak. This follow-up helps to ensure that the fluid collection (which can affect hearing) has resolved.

Croup. The term croup is used to describe a variety of respiratory illnesses in children. It mostly occurs in infants and young children between six months and three years of age, and is less commonly seen in children older than six years. It is usually seen in the fall and early winter months. It is slightly more common in boys compared with girls. The most common cause of croup is a viral infection (such as parainfluenza or influenza) that leads to swelling of the larynx (voice box) and trachea (windpipe). However, infection with these viruses is common and most children with these infections do not develop croup[2].

The viruses infect the nose and throat initially, and then spread along the upper respiratory tract (back of the throat) to the larynx and trachea (windpipe). As the infection progresses, the bottom part of the larynx and top part of the trachea become swollen, which narrows the space available for air to enter the lungs. This leads to the symptoms of croup.

Bacterial infection of the same areas can occur during the viral infection, but this does not happen very often. Bacterial coinfection is usually more severe and requires a different treatment than a viral infection.

The primary symptoms of croup are a "barking cough" and hoarseness. Croup is usually mild and lasts less than one week, although it is possible for symptoms to become severe and life threatening. Symptoms are usually worse at night. The more severe cases are due to difficulty breathing caused by swelling in the upper part of the windpipe. Symptoms usually start gradually, beginning with nasal stuffiness and runny nose. Difficulty breathing can develop and become worse during the 12 to 48 hours after congestion and barking cough begin.

Most children develop a fever, which may range from mild (100.4°F or 38°C) to very high (104°F or 40.5°C). The fever itself does not cause them harm. The information in the table describes how to take a child's temperature[18].

Other symptoms such as rash, eye redness (called conjunctivitis), and swollen lymph nodes may develop, depending upon the virus causing the illness. Dehydration can occur if the child is not able to drink enough fluids.

As the upper airway narrows, high-pitched, noisy breathing (called stridor) develops and the child may breathe faster; the child may become restless or anxious (agitated) as breathing becomes more difficult. Agitation can increase the narrowing, which leads to even more difficulty breathing and further agitation. The effort required to breathe faster and harder is tiring, and the child may become exhausted and unable to breathe on his or her own in severe cases.

Low oxygen levels (called hypoxia) and blue-tinged skin (called cyanosis) can develop as airflow to the lungs is restricted. Cyanosis may first be noticed in the fingers and toenails; ear lobes; tip of the nose, lips, tongue; and inside of the cheek[2].

Contagiousness - Croup is caused by viruses that can be spread easily through coughing, sneezing, and respiratory secretions (mucus and droplets from coughing or sneezing). Children with croup should be considered contagious for three days after the illness begins or until the fever is gone.

Severity of croup - Croup can be very mild or very severe, depending on how difficult it is for the infant or child to pull air into the lungs. The size (diameter) of the windpipe (which is normally smaller in infants) and degree of narrowing due to swelling are important determinants of severity. Croup may become more severe when a child becomes agitated or upset.

A child with moderate to severe croup may struggle to breathe in ways that can be frightening for both the child and parent (or other caregivers).

Mild croup - A child with mild croup generally is alert and without blue-tinged skin or retractions (sucking in of the skin around the ribs and the top of the sternum). There may be a barking cough. Stridor (high-pitched, noisy breathing) is not present at rest but may be present as the child coughs or cries. A child with mild croup can develop more severe symptoms intermittently throughout the course of the illness, especially during the evening hours.

Moderate croup - A child with moderate croup may have stridor (high-pitched, noisy breathing) and retractions (sucking in of the skin around the ribs and the top of the sternum) at rest, may be slightly disoriented or agitated, and may have moderate difficulty breathing[11].

Severe croup - A child with severe croup has stridor and retractions at rest. Retractions are a sign of severe croup. These include inward movement (sucking in) of the sternum (breast bone) or skin between the ribs as the child struggles to take a breath. The child may appear anxious, agitated, or fatigued. Cyanosis (blue-tinged skin) is common, initially only when the child is moving or crying, but progressively worsening so that it is present even when the child is resting.

Croup is usually diagnosed based upon the child's symptoms and signs, including a barking cough and stridor, especially if these findings occur during the fall and winter months. X-ray and laboratory testing are rarely needed.

The treatment of croup depends upon the severity of symptoms and the risk of rapid worsening; children with mild symptoms who have no risk factors for severe croup generally are treated at home, while a child with moderate to severe symptoms or who is at risk for rapid worsening should be treated in an emergency department[2].

Common cold is the most common illness in the United States. Infants and children are affected more often and experience more prolonged symptoms than adults.

The common cold is a group of symptoms caused by a number of different viruses. There are more than 100 different varieties of rhinovirus, the type of virus responsible for the greatest number of colds. Other viruses that cause colds include enteroviruses (echovirus and coxsackieviruses) and coronavirus. Because there are so many viruses that cause the symptoms of the common cold, people may have multiple colds each year and dozens over a lifetime[16].

Children under six years average six to eight colds per year (up to one per month, September through April), with symptoms lasting an average of 14 days. This means that a child could be ill with intermittent cold symptoms for nearly half of the days in this time period, without cause for concern. Young children in daycare appear to suffer from more colds than children cared for at home. However, when day-care children enter primary school, they catch fewer colds, presumably because they are already immune to a larger number.

Seasonal patterns - The common cold may occur at any time of year, although most colds occur during the fall and winter months, regardless of the geographic location. Colds are not caused by cold climates or being exposed to cold air.

Transmission - Colds are transmitted from person-to-person, either by direct contact or by contact with the virus in the environment. Colds are most contagious during the first two to four days.

Direct contact - People with colds typically carry the cold virus on their hands, where it is capable of infecting another person for at least two hours. If a child with a cold touches another child or adult, who then touches their eye, nose, or mouth, the virus can later infect that person[14].

Infection from particles on surfaces - Some cold viruses can live on surfaces (such as countertops, door handles, or toys) for up to one day.

Inhaling viral particles - Droplets containing viral particles can be exhaled into the air by breathing or coughing. Rhinoviruses are not usually transmitted as a result of contact with infected droplets, although influenza virus and coronavirus can be transmitted via small droplets. Cold viruses are not usually spread through saliva.

The signs and symptoms of a cold usually begin one to two days after exposure. In children, nasal congestion is the most prominent symptom. Children can also have clear, yellow, or green-colored nasal discharge; fever (temperature higher than 100.4°F or 38°C) is common during the first three days of the illness. The table describes how to take a child's temperature.

Other symptoms may include sore throat, cough, irritability, difficulty sleeping, and decreased appetite. The lining of the nose may become red and swollen, and the lymph nodes (glands) in the neck may become slightly enlarged.

The symptoms of a cold are usually worst during the first 10 days. However, some children continue to have a runny nose, congestion, and a cough beyond 10 days. In addition, it is not unusual for a child to develop a second cold as the symptoms of the first cold are resolving; this can make it seem as if the child has a single cold that lasts for weeks or even months, especially during the fall and winter. This is not a cause for concern, unless the child has any of the more serious symptoms[2].

Symptoms of allergies (allergic rhinitis) are slightly different than those of a cold and may include bothersome itching of the nose and eyes.

Most children who have colds do not develop complications. However, parents should be aware of the signs and symptoms of potential complications.

Ear infection - Between 5 and 19% of children with a cold develop a bacterial or viral ear infection. If a child develops a fever (temperature higher than 100.4°F or 38°C) after the first three days of cold symptoms, an ear infection may be to blame.

Asthma - Colds can cause wheezing in children who have not wheezed before or worsening of asthma in children who have a history of this condition.

Sinusitis - Children who have nasal congestion that does not improve over the course of 10 days may have a bacterial sinus infection.

Pneumonia - Children who develop a fever after the first three days of cold symptoms may have bacterial pneumonia, especially if the child also has a cough and is breathing rapidly[2].

Common cold treatment

Symptomatic treatment - The treatment of an infant or child with a cold is different than treatment recommended for adults. Antihistamines, decongestants, cough medicines, and expectorants, alone and in combinations, are all marketed for the symptoms of a cold. However, there have been few clinical trials of these products in infants and children, and there are no studies that demonstrate any benefit in infants or children.

The US Food and Drug Administration (FDA) advisory panel has recommended against the use of these medications in children younger than six years. These medications are not proven to be effective and have the potential to cause dangerous side effects. For children older than six years, cold medications may have fewer risks; however, there is still no proven benefit.

Parents may give acetaminophen to treat a child (older than three months) who is uncomfortable because of fever during the first few days of a cold. Ibuprofen can be given to children older than six months. Aspirin should not be given to any child under age 18 years. There is no benefit of these medications if the child is comfortable. Parents should speak with their child's health care provider about when and how to treat fever[12].

Humidified air may improve symptoms of nasal congestion and runny nose. For infants, parents can try saline nose drops to thin the mucus, followed by bulb suction to temporarily remove nasal secretions. An older child may try using a saline nose spray.

Honey may be helpful for nighttime cough in children older than 12 months.

Parents should encourage their child to drink an adequate amount of fluids; it is not necessary to drink extra fluids. Children often have a reduced appetite during a cold and may eat less than usual. If an infant or child completely refuses to eat or drink for a prolonged period, the parent should contact their child's health care provider[11].

Antibiotics are not effective in treating colds. They may be necessary if the cold is complicated by a bacterial infection, like an ear infection, pneumonia, or sinusitis. Parents who think their child has developed one of these infections should contact their child's health care provider.

Inappropriate use of antibiotics can lead to the development of antibiotic resistance and can possibly lead to side effects, such as an allergic reaction.

Herbal and alternative treatments - A number of alternative products, including zinc and herbal products such as echinacea, are advertised to treat or prevent the common cold. There is some evidence that prophylactic use of vitamin C may decrease the duration of the common cold in children. With the exception of vitamin C, none of these treatments have been proven to be effective in clinical trials; their use is not recommended[15].

Common cold prevention

Simple hygiene measures can help to prevent infection with the viruses that cause colds. These measures include:

- Hand washing is an essential and highly effective way to prevent the spread of infection. Hands should be wet with water and plain soap, and rubbed together for 15 to 30 seconds. It is not necessary to use antibacterial hand soap. Teach children to wash their hands before and after eating and after coughing or sneezing.

- Alcohol-based hand rubs are a good alternative for disinfecting hands if a sink is not available. Hand rubs should be spread over the entire surface of hands, fingers, and wrists until dry and may be used several times. These rubs can be used repeatedly without skin irritation or loss of effectiveness.

- It may be difficult or impossible to completely avoid people who are ill, although parents should try to limit direct contact.

- Most children with colds need not be excluded from day care or school. It is likely that they spread the virus before they developed cold symptoms[2].

●Using a household cleaner that kills viruses, such as phenol/alcohol (sample brand name: Lysol), may help to reduce viral transmission.

TESTS FOR SELF-CONTROL

1. How many death of children under five are due to breathing disorder, diarrhea, malaria, measles, HIV, neonatal pathology?
 - A. 40 - 55%
 - B. 70 - 90%
 - C. 20 - 40%
 - D. 15 - 65%

2. Which is the purpose of integrate curing of children?
 - A. Diagnosis of disease
 - B. The control under widespread non-epidemic diseases in children under five
 - C. The improvement of practical knowledge in medical staff
 - D. the decreasing of morbidity, mortality, disability and physical development of children under five

3. Which is the main principle of integrate curing of children?
 - A. Diagnosis of disease
 - B. The algorithm of emergency as rule of «traffic lights»
 - C. The urgent admission to the hospital
 - D. sign of severe disease
 - E. Speed, quality, complex

4. Which conditions are included in the integrated curing of children?
 - A. flu, pneumonia, anemia, diarrhea
 - B. Infection of ear and throat
 - C. HIV/AIDS, local infections, sepsis, meningitis, disorder of nutrition, jaundice
 - D. options A, B, C
 - E. options A, C

5. For which age groups of children are recommended integrated treatment?
- A. 1 week - 2 mo
 - B. 2 mo - 5 years
 - C. 0 - 5 years
 - D. 1 week- 3 years
 - E. options A,B
6. How many steps are included in the integrated treatment of children?
- A. 2: physical exam, treatment
 - B. 8: physical exam, the assessment of pathological changes, classification, treatment plan, medications, consultation of mother, assessment of vaccination, following exams
 - C. 6: the assessment of pathological changes, classification, treatment plan, medications, consultation of mother, following exams
 - D. 3: the assessment of pathological changes, treatment plan, following exams
 - E. 5: the assessment of pathological changes, classification, treatment plan, consultation of mother, following exams
7. Which steps are included in the examination of children 1 week - 2 months age?
- A. To check the possibility of bacterial diarrhea
 - B. To assess the feeding and immunization's status
 - C. Other problems
 - D. options A,B,C
 - E. No answer
8. When the doctor has to monitor for jaundice and bilirubine level in all newborns?
- A. If more than 70% of body is jellow
 - B. If the jaundice was duirnh first 24 hours of live
 - C. If the palms and soles arejellow
 - D. options B,C

E. options A, B

9. The “red flags” for children of 2 months - 5 years age are:

- A. Cough or breathing disorders, hyperthermia, disorders of ears and throat
- B. Cough or breathing disorders, jaundice, hyperthermia, disturbance of calendar of immunization
- C. Not enough feeding, insufficient feeding, jaundice, diarrhea, hyperthermia, disorders of ears
- D. Cough or breathing disorders, diarrhea, hyperthermia, disorders of ears
- E. jaundice, diarrhea, hyperthermia

10. The family doctor assesses the calendar of immunization. The child after of 2 mo to 5 years age?

- A. If the patient has to be admitted to hospital
- B. If the patient has primary or secondary immunodeficiency you can not use live vaccine
- C. They don't perform a PPSiF during 3 days after previous dose
- D. options A, B, C
- E. No correct answer

11. After birth, essential care of a newborn should include everything, except:

- A. Ensuring that the baby is breathing
- B. Starting the newborn on exclusive breastfeeding right away
- C. Keeping the baby warm and washing hands before touching the baby
- D. Giving vitamins and minerals to the baby.

12. What is the reason of about 45% of deaths in children under 5 years of age?

- A. Nutrition-related factors
- B. Vaccination
- C. Ecology

D. Injuries.

13. What is the main task of the Sustainable Development Goals (SDGs) adopted by the United Nations in 2015?

- A. To decrease number of overweight children
- B. To ensure healthy lives and promote well-being for all children
- C. To decrease child mortality rate in Africa
- D. To ensure children get vaccinated.

14. What bilirubin level leads to a jaundiced appearance in newborns?

- A. 35 $\mu\text{mol/l}$
- B. 50 $\mu\text{mol/l}$
- C. More than 85 $\mu\text{mol/l}$ (5 mg/dL)
- D. 51-85 $\mu\text{mol/l}$.

15. Which of the following features characterizes pathological jaundice?

- A. Clinical jaundice appearing in the first 24 hours or greater than 14 days of life direct bilirubin more than 34 $\mu\text{mol/l}$ (2.0mg/dL).
- B. The level of bilirubin raised from the second day after birth and
- C. The level of bilirubin reaches a maximum by 4-7 days
- D. The level of bilirubin in the blood normalized to 2-nd week.

16. The signs of dehydration in children in case of diarrhea are all except?

- A. No urine in more than 8hours
- B. Very dry mouth
- C. No tears
- D. Pink skin color.

17. In which case parents should ask for medical care?

- A. A child who is less than three months old in too many clothes or blankets with fever 37,5C°
- B. Children of any age who have recurrent fevers for more than seven days, even if the fevers last only a few hours

- C. A child who had fever short time after vaccination but it ended shortly
- D. A child with a fever 37,8 C° who goes through teething.

18. The typical symptoms of ear infections are all except:

- A. Fever
- B. Pain
- C. Dyspnea
- D. Fussiness.

19. The most common cause of croup in children:

- A. Viral infection (parainfluenza or influenza)
- B. Bacterial infection
- C. Mycoplasma
- D. Fungi.

20. Medications that can be used in children with common cold are all except:

- A. Acetaminophen
- B. Ibuprofen
- C. Saline nose drops
- D. Antibiotics.

1	2	3	4	5	6	7	8	9	10
B	D	B	D	B	C	D	E	D	D
11	12	13	14	15	16	17	18	19	20
D	A	B	C	A	D	B	C	A	D

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