PASSPORT OF STATION
Diagnosis and treatment of common diseases in children (pediatrics, neonatology, children's infectious diseases)

Task 1. Assessment of child's physical development. Obesity.

1. **Author**: Tsyunchyk Y.G.
2. **Professional standard**
   Child's Management
3. **Competency checking**
   - Assessment of child's physical development (SD nomograms).
   - Suggestion about child's physical development.
   - Make the diagnosis. Classify the illness.

Case: Diagnosis and treatment of obesity.

Scenario № 1: A 9-year-old girl comes to the family doctor complaining with excessive weight gain for the last 2 years, headaches in the occipital region, an increased appetite, thirst, general weakness, poor school performance.

It is known that at the age of 7 years the girl had concussion of the brain. Parents don't have obesity.

On examination: body weight is 53 kg, growth is 130 cm. The skin is marble, on the lateral surfaces of the trunk and on the hips - purple striaes. Subcutaneous fat layer is predominantly on the face, thoracic girdle, in the neck. The respirations are 17/min, breathing is vesicular. Pulse is 78/min, the heart sounds are clear. Blood pressure is 120/80 mm Hg. The abdomen is soft, the liver and spleen are not enlarged. Urination is free 4-5 times a day. Stool is once a day.

Task: Assess the child's physical development. Make the diagnosis. Treat and manage the child.

Briefing 1: You are Family Doctor. A 9-year-old girl comes to you complaining with excessive weight gain for the last 2 years, headaches in the occipital region, an increased appetite, thirst, general weakness, poor school performance.

It is known that at the age of 7 years the girl had concussion of the brain. Parents don't have obesity.

On examination: body weight is 53 kg, growth is 130 cm. The skin is marble, on the lateral surfaces of the trunk and on the hips - purple striaes. Subcutaneous fat layer is predominantly on the face, thoracic girdle, in the neck. The respirations are 17/min, breathing is vesicular. Pulse is 78/min, the heart sounds are clear. Blood pressure is 120/80 mm Hg. The abdomen is soft, the liver and spleen are not enlarged. Urination is free 4-5 times a day. Stool is once a day.

Task: Assess the child's physical development. Make the diagnosis. Treat and manage the child.

Assessment of child's physical development

<table>
<tr><td colspan="6">1. Find the patient's anthropometrical parameters on appropriate nomogram.
2. Assess result and mark this result on the Check-list.
3. Write the conclusion about child's physical development.</td></tr>
<tr><td rowspan="2">1.</td><td rowspan="2">Find the point on "Weight for age" nomogram, mark the result on the Check-list</td><td>0 - +2z</td><td>More +2z</td><td>More +3z</td><td></td></tr>
<tr><td>0 - -2z</td><td>Less -2z</td><td>Less - 3z</td><td></td></tr>
<tr><td rowspan="2">2.</td><td rowspan="2">Assess and classify the result "Weight for age"</td><td colspan="3">Normal</td><td></td></tr>
<tr><td colspan="2">Excess weight</td><td>Obesity</td><td></td></tr>
<tr><td rowspan="2">3.</td><td rowspan="2">Find the point on "Height for age" nomogram, mark the result on the Check-list</td><td>0 - +2z</td><td colspan="2">More +2z</td><td>More +3z</td></tr>
<tr><td>0 - -2z</td><td colspan="2">Less -2z</td><td>Less - 3z</td></tr>
<tr><td rowspan="2">4.</td><td rowspan="2">Assess and classify the result "Height for age"</td><td colspan="4">Normal</td></tr>
<tr><td colspan="2">Growth delay</td><td colspan="2">Growth deficiency</td></tr>
<tr><td>5.</td><td>Calculate the BMI</td><td colspan="4"></td></tr>
<tr><td rowspan="2">6.</td><td rowspan="2">Find the point on "BMI for age" nomogram, mark the result on the Check-list</td><td>0 - +1z</td><td>More +1z</td><td>More +2z</td><td>More +3z</td></tr>
<tr><td>0 - -1z</td><td>Less -1z</td><td>Less -2z</td><td>Less - 3z</td></tr>
<tr><td rowspan="3">7.</td><td rowspan="3">Classify the "BMI for age"</td><td colspan="2">Risk for weight excess</td><td colspan="2">Excess weight</td><td>Obesity</td></tr>
<tr><td colspan="5">Normal</td></tr>
<tr><td colspan="2">Malnutrition</td><td colspan="3">Cachexia</td></tr>
<tr><td>8.</td><td colspan="5">Write the conclusion about child's physical development</td></tr>
</table>

Equipment:

1. Case
2. SD nomograms
3. Ruler
4. Pen
5. Calculator

Sources, documents:

1. Наказ Міністерства охорони здоров'я України від 20.03.2008 р. № 149 «КЛІНІЧНИЙ ПРОТОКОЛМЕДИЧНОГО ДОГЛЯДУ ЗА ЗДОРОВОЮ ДИТИНОЮ ВІКОМ ДО 3 РОКІВ»
2. Педіатрія у двох томах, за редакцією Аряєва М.Л., Котової Н.В. Т2, Захворювання дітей раннього віку. Пульмонологія. Алергологія. Кардіологія. Гастроентерологія. Нефрологія. ВІЛ-інфекція. Первинна медико-санітарна допомога підручник – Одеса.: ОНМедУ. – 2014. – 312 с.
3. Nelson's Textbook. 19th edition, 2017.

BMI-for-age GIRLS

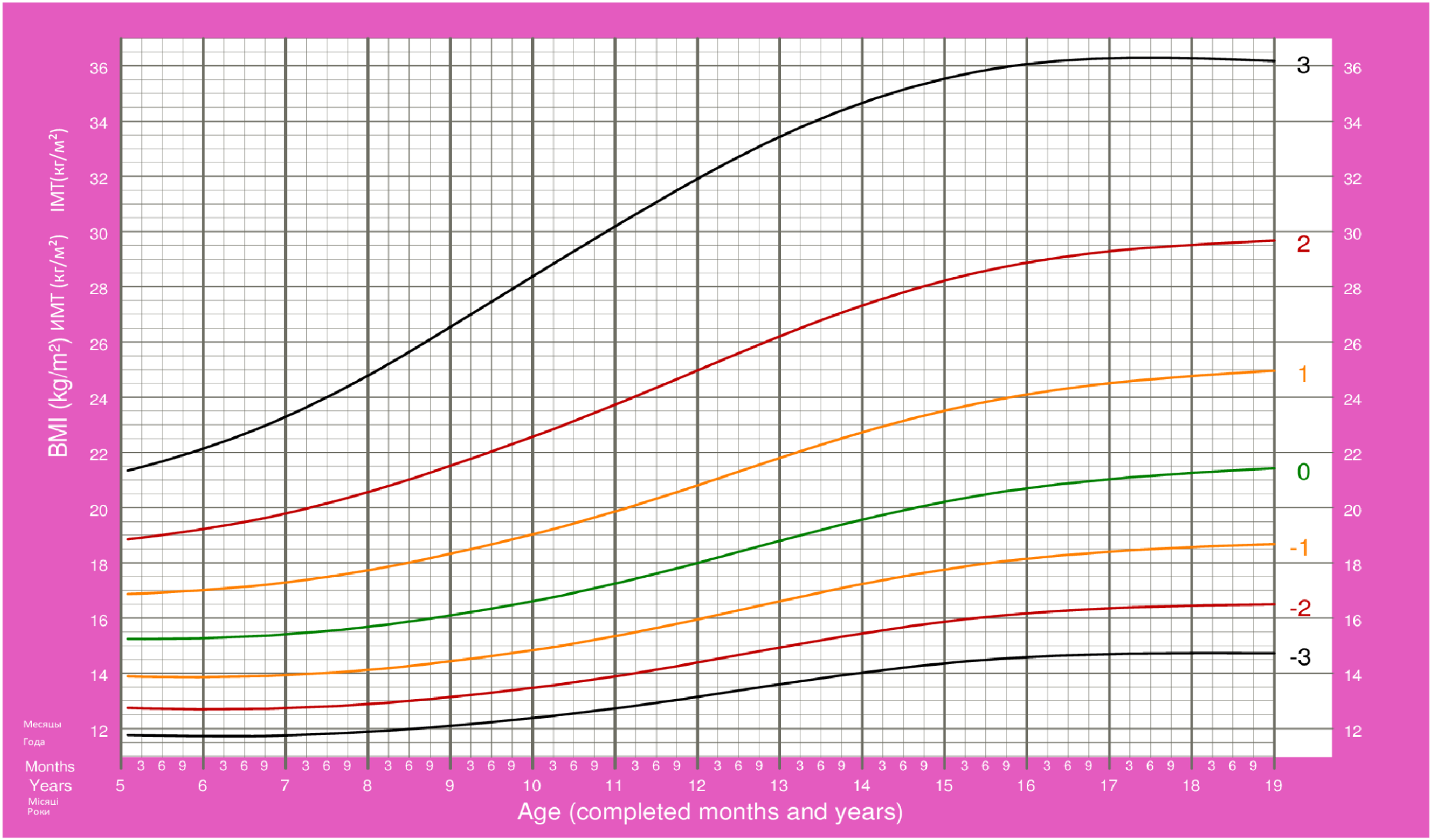
5 to 19 years (z-scores)

Индекс массы тела, Девочки

Індекс маси тіла, Дівчата

5-19 лет(років)

World Health Organization



Возраст (полных месяцев и лет)

Вік (повних місяців та років)

2007 WHO Reference

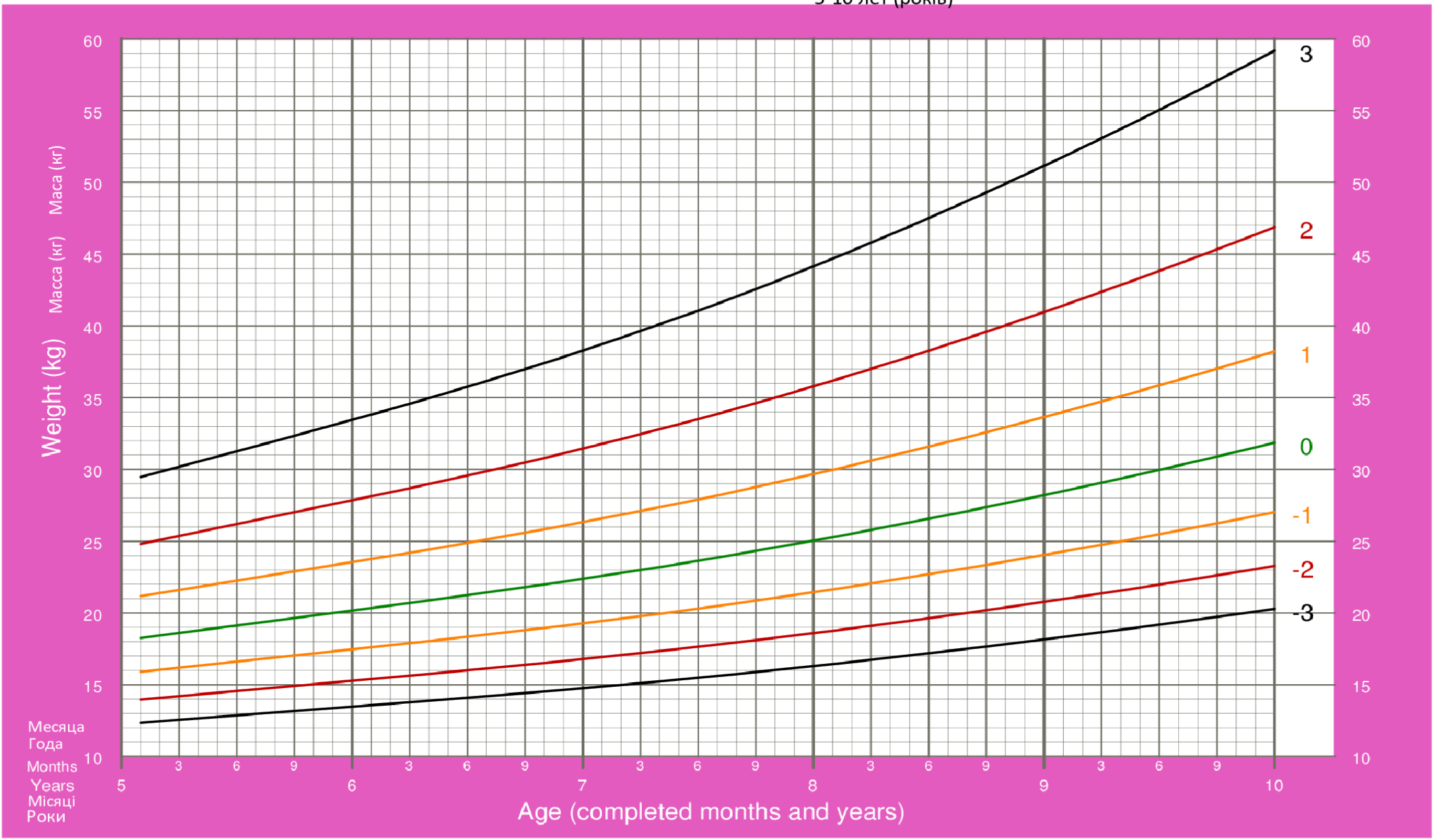
Weight-for-age GIRLS

Масса к возрасту, Девочки
Маса до віку, Дівчатка

World Health Organization

5 to 10 years (z-scores)

5-10 лет (років)



Возраст (полных месяцев и лет)
Вік (повних місяців та років)

2007 WHO Reference

Height-for-age GIRLS

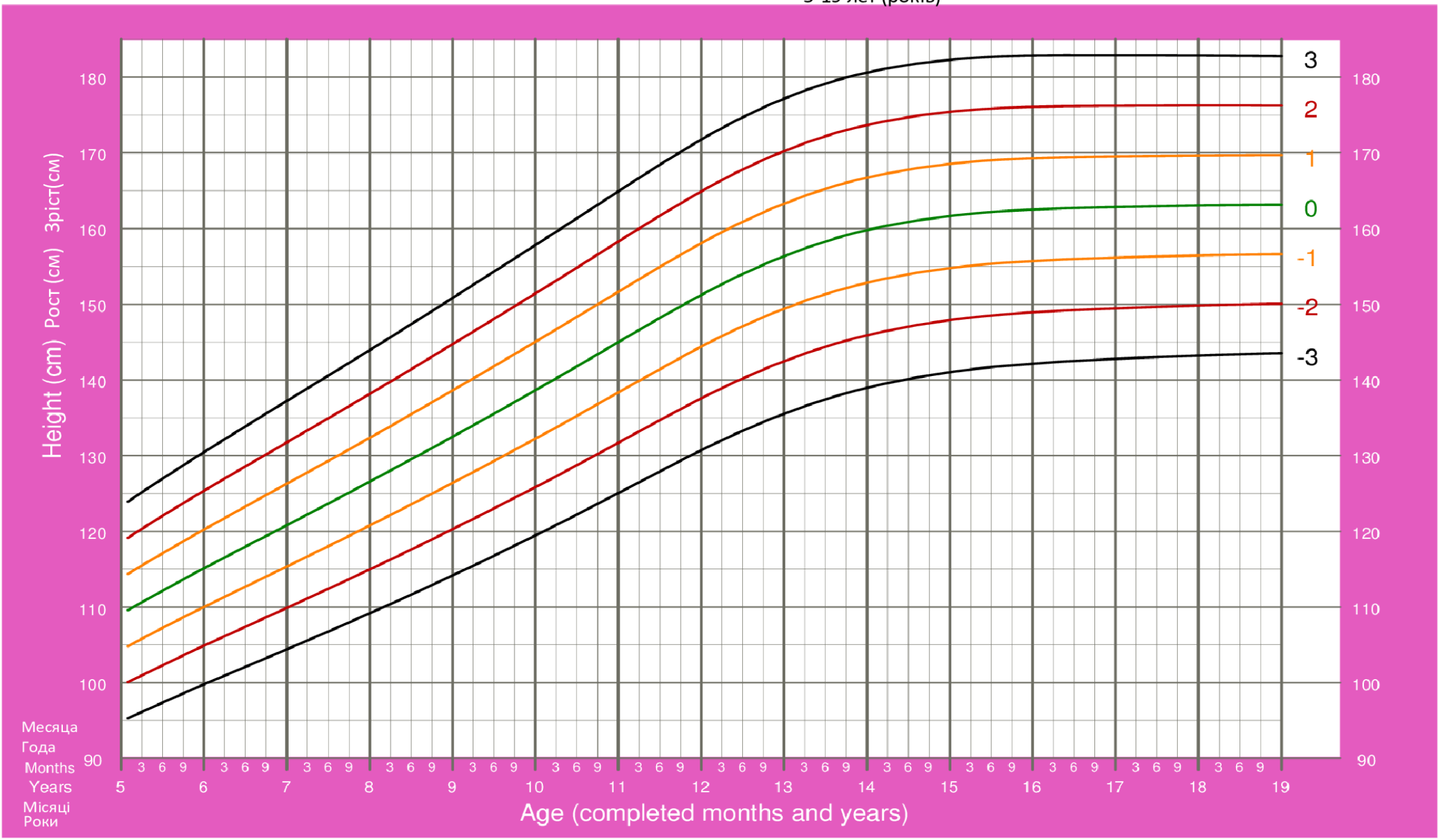
5 to 19 years (z-scores)

Рост к возрасту, Девочки

Зріст до віку, Дівчатка

5-19 лет (років)

World Health Organization



Возраст (полных месяцев и лет)

Вік (повних місяців та років)

2007 WHO Reference

Task 2. Assessment of the physical child development
Protein-energy deficiency

1. **Authors: Kaplina L. E., Kotova N.V.**
   Translated into English by Kozhevin RV

2. Professional standard: child care

3. Competencies to be checked:

- Estimation of physical child development by sigmal nomograms.
- Conclusion on the physical child development.
- Justification of the clinical diagnosis
- The student should be able to announce and explain the algorithm of their actions and reasoning

1. Scenario 2: The boy is 3 months old, born with a weight of 3500 g, body length 52 cm. He is on a breastfeeding. Two weeks ago he was sick with pneumonia.

During examination the body mass is 5000, body length is 60 cm. The body temperature is 36.3 ° C. The skin is pink, moist and has a normal elasticity. The subcutaneous fat layer is lowered on the body; the skin turgor is normal. Mucous membranes are pink and moist. Respiratory rate is 40 in 1 min, vesicular. Heart rate is 140 per 1 minute. Abdomen is soft. The liver is 2 cm below the costal arc. The edge of the liver is elastic. Spleen is under the edge of a rib arch. Stool is yellow, 3 times a day. Urine is light yellow.

Task: Assess the physical development of the child according to the nomograms and establish the diagnosis.

2. Briefing 2: You are a general practitioner and examining a child of 3 months old, born with a weight of 3500 g, body length 52 cm. He is on a breastfeeding. Two weeks ago he was sick with pneumonia.

During examination the body mass is 5000, body length is 60 cm. The body temperature is 36.3 ° C. The skin is pink, moist and has a normal elasticity. The subcutaneous fat layer is lowered on the body; the skin's turgor is normal. Mucous membranes are pink and moist. Respiratory rate is 40 in 1 min, vesicular. Heart rate is 140 per 1 minute. Abdomen is soft. The liver is 2 cm below the costal arc. The edge of the liver is elastic. Spleen is under the edge of a rib arch. Stool is yellow 3 times a day. Urine is light yellow.

Task: Assess the child physical development according to the nomograms and establish the diagnosis.

The student must pronounce every action.

Assessment of physical child development

Student:
1. Finds points on the corresponding charts that characterize anthropometric indicators, according to the task, and emphasizes the result in the check list.
2. Evaluates each received result and emphasizes the result in a check list.
3. Writes a conclusion on the physical development of the child

1	To find a point on the nomogram of body weight estimation to age and emphasize the result	0 - +2Z	above +2Z		above +3Z
		0 - -2Z	Below -2Z		Below - 3Z
2	Estimate the body weight to the age	Norm			
		Lack of weight	Extremely underweight		
3	To find a point on the nomogram of body length estimation to the age and emphasize the result	0 - +2Z	above +2Z		above +3Z
		0 - -2Z	Below -2Z		Below - 3Z
4	Estimate the length of the body to age	Norm			
		Growth delay			Excessive growth retardation
5	Calculate using the calculator the body mass index and record the result				
6	To emphasize the result of evaluation the body mass index to age	0 - +1Z	above +1Z	above +2Z	above +3Z
		0 - -1Z	Below -1Z	Below -2Z	Below - 3Z
7	Evaluate body mass index to age	Risk of overweight	Overweight		Obesity
		Norm			
		Lack of weight	Excessive insufficient weight		
8	Write a diagnosis based on clinical data.				

3. Assessment of the child's physical development during the first 5 years

Charts of body length / height / age

1) Set the value of full weeks, months or years and months on the horizontal axis. Point values should be placed on the vertical line (and not between the vertical lines). For example, if a child is 5.5 months, the values are applied on the division for 5 months (instead of between 5 and 6 months).

2) Set the value of body length / height on the vertical axis. Points of importance should be placed between horizontal lines. For example, if the child's body length is 60.5 cm, apply a value in the cell between the horizontal lines.

3) After drawing points based on the results of two or more surveys, you need to connect the points by the straight line in order to construct the curve and see the dynamics.

Charts of body weight / age

In order to apply the weight value on the body charts for a given age, it should:

1) Set the age value on the horizontal axis in full weeks, months or years and months. Points should be set on a vertical line (but not between vertical lines).

2) Set the body weight to the vertical axis. Point values should be placed on the horizontal line.

3) After drawing points based on the results of two or more surveys, combine them with each other straight line to construct the curve and see the dynamics.

Charts for ratio of body mass / body length / height / age

1) Set the body length or height on the horizontal axis. Point values should be placed on the vertical line. You need to round the value to the nearest whole centimeter.

2) Apply mass to the vertical axis. Points are set on horizontal lines or between.

3) After applying the body mass / height ratio for two or more surveys, connect the dots to a straight line to construct the curve and see the dynamics.

Charts body mass index (BMI)/ age

The body mass index (BMI) is determined by the formula: body mass value divided by height in square (kg / m^2). The height indicator must be converted into meters. The result of the calculations is rounded to decimal.

In order apply to the chart the BMI for a given age, it should:

1) Set the value of age on horizontal axis in full weeks, months or years and months. Point values should be placed on the vertical line (and not between the vertical lines).

2) Put the value of the BMI on the vertical axis. Point values should be placed on the horizontal line or between the lines.

After drawing points, follow two or more reviews to combine them with a straight line to construct the curve and see the dynamics.

Interpretation of indicators of physical development

1) Values between the standard deviation lines -2 and -3 are considered to be lower than the standard deviation line "-2"

2) Values between standard deviation lines "2" and "3" are considered to be the higher standard deviation line "2".

If, the indicator is directly on the standard deviation line, it is assumed that this value falls into the category of lesser severity. For example, if the mass index for this age is on the line "-3", it is considered that the child is inadequate, but not extremely inadequate.

Interpretation of standard deviations of physical development indicators

Standard deviation	Indicators of physical development			
	Body length / height for this age	Weight for a given age	Relative mass to body / height	BMI for the given age
Above 3	See note 1	See note2	Adiposity	Adiposity
Above 2	Norm		Overweight	Overweight
Above 1	Norm		Possible risk of overweight (See note 3)	Possible risk of overweight (See note 3)
0 (mediane)	Norm	Norm	Norm	Norm
Below **−1**	Norm	Norm	Norm	Norm
Below **−2**	Growth delay (See note 4)	Insufficient weight	Depleted	Depleted
Below **−3**	Excessive growth retardation (See note 4)	Excessive deficiency weight	Very exhausted	Very exhausted

Notes:

1. A child whose growth rates fall into this category is very high.

High growth rarely presents a problem, except when it may indicate an endocrine disorder (e.g., a tumor that produces growth hormones). If you suspect an endocrine disorder, your child should be referred to a specialist for advice (for example, if a child is too high for his or her age, parents of normal height).

2. A child whose mass index for a given age falls into this category may have a physical development problem, but it is better to do so based on analysis of weight / body / height or BMI for this age.

3. The indicator above the standard deviation line 1 indicates a potential risk. The upward trend toward standard deviation line 2 indicates a risk.

4. There is likelihood that a child with a delay or severe delay in growth will be overweight.

Equipment:
1. Task
2. Sigmal nomograms
3. Ruler
4. Pencil
5. Calculator

Justification of the correct answers:

1. Order of the Ministry of Health of Ukraine dated March 20, 2008 No. 149 "CLINICAL PROTOCOL OF MEDICAL CARE FOR A HEALTHY CHILD IN A VICTIM TO 3 YEARS"

2. Pediatrics in two volumes, edited by M. Aryayev, N. Kotova T2, Diseases of young children. Pulmonology. Allergology. Cardiology. Gastroenterology. Nephrology HIV infection. Primary medical and nursing help textbook - Odessa: ONMedU. - 2014 - 312 p.

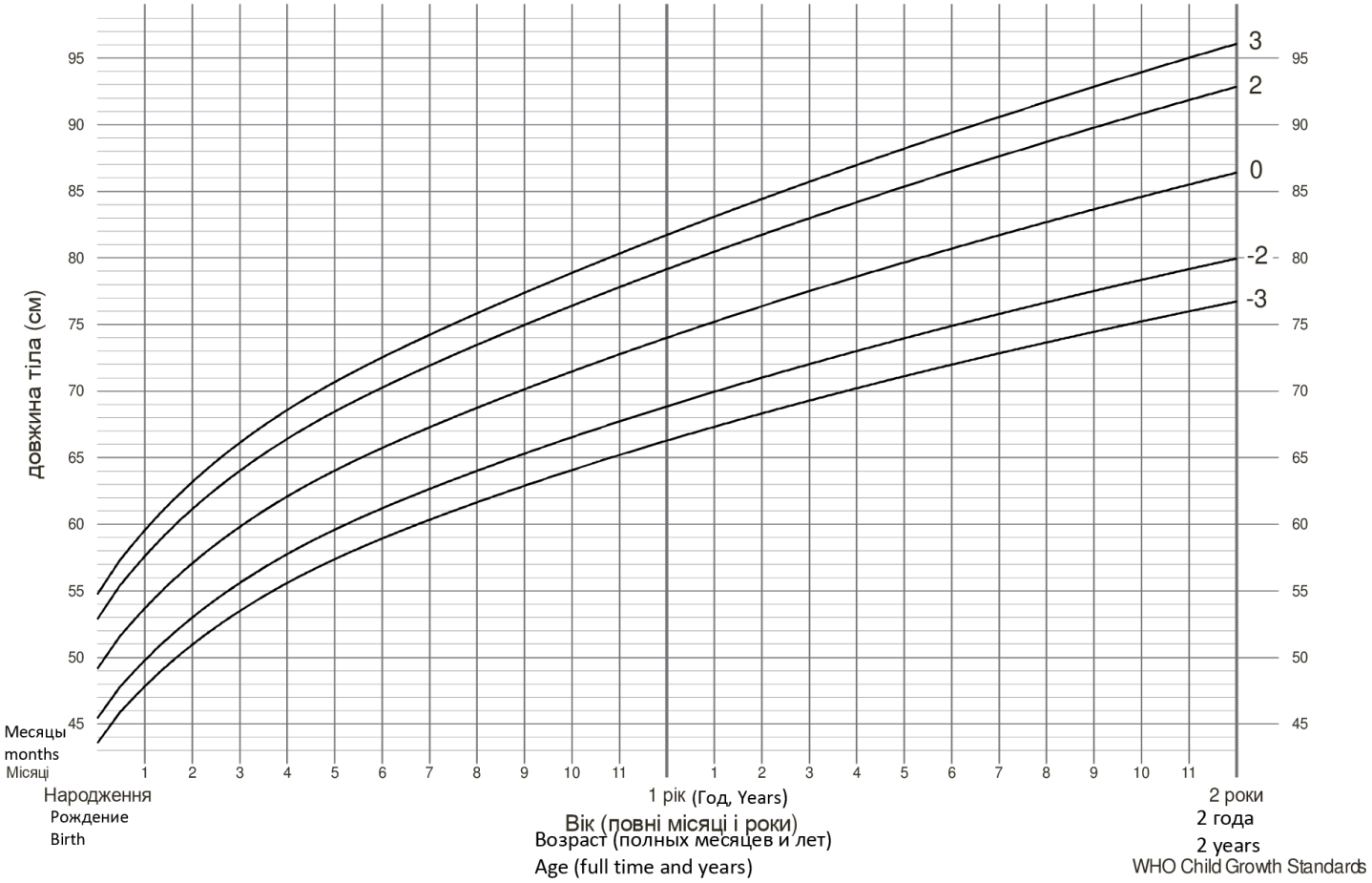
Длина тела к возрасту, девочки
От рождения до 2 лет .

Довжина тіла до віку, дівчатка

від народження до 2-х років (z-scores)

Body length to age, Girls
(from birth to 2 years)

World Health Organization



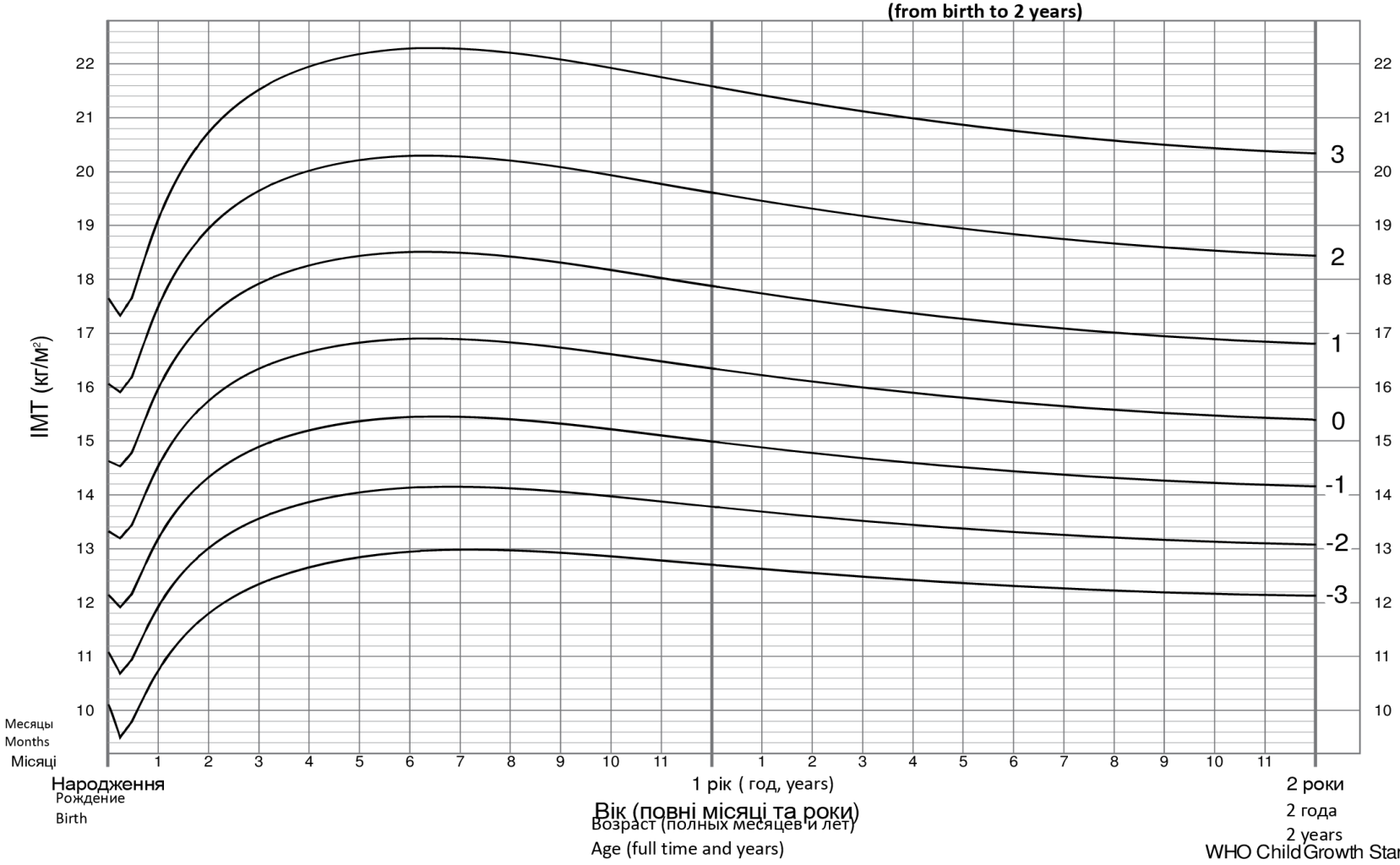
Індекс маси тіла (ІМТ), дівчатка

від народження до 2 років (z-scores)

Индекс массы тела (ИМТ), девочки (от рождения до 2 лет)

Body mass index (BMI), girls (from birth to 2 years)

World Health Organization



WHO Child Growth Standards

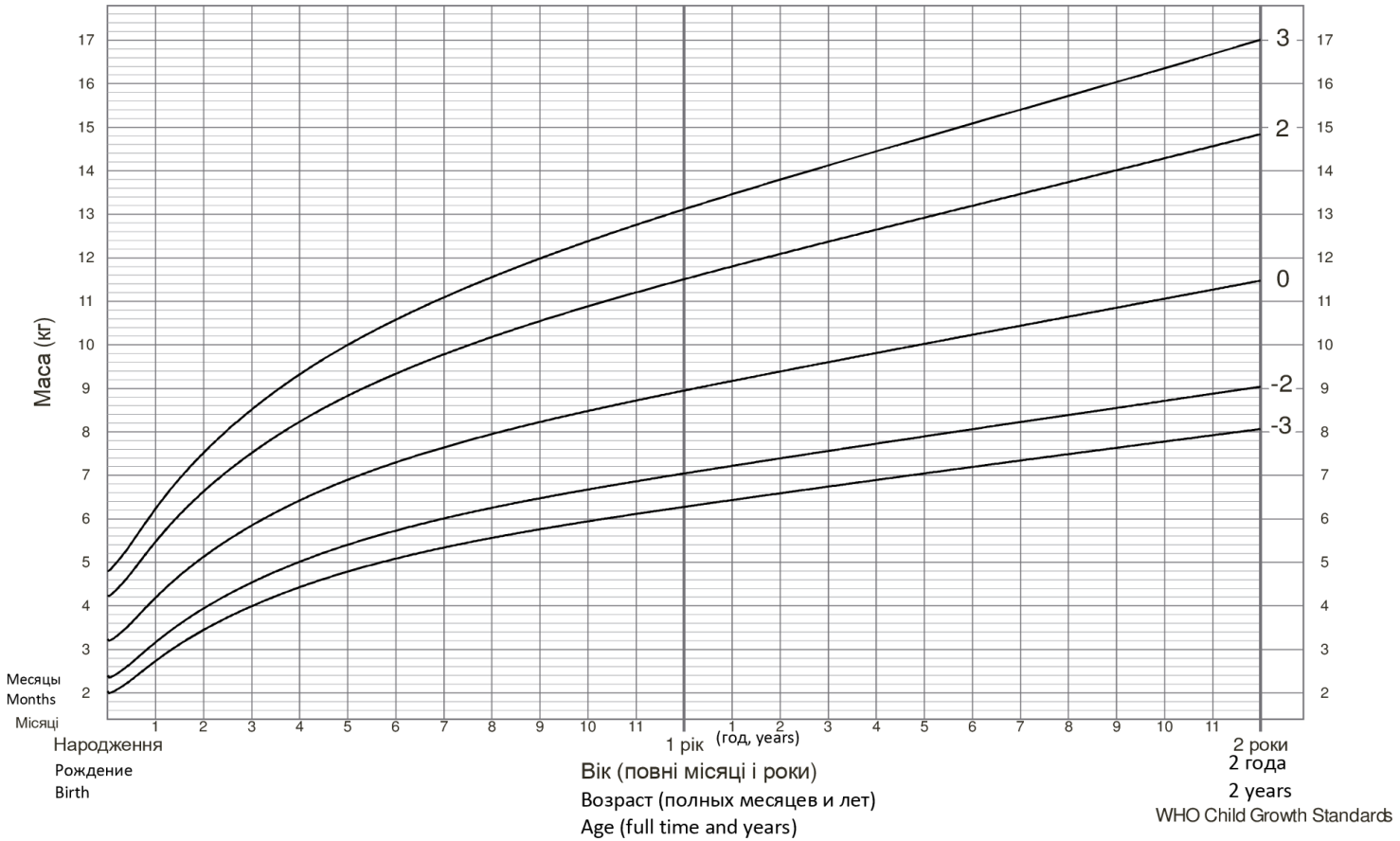
Масса к возрасту, Девочки
(от рождения до 2 лет)

Маса до віку, дівчатка

від народження до 2 років (z-scores)

Mass to years, Girls
(from birth to 2 years)

World Health Organization



WHO Child Growth Standards

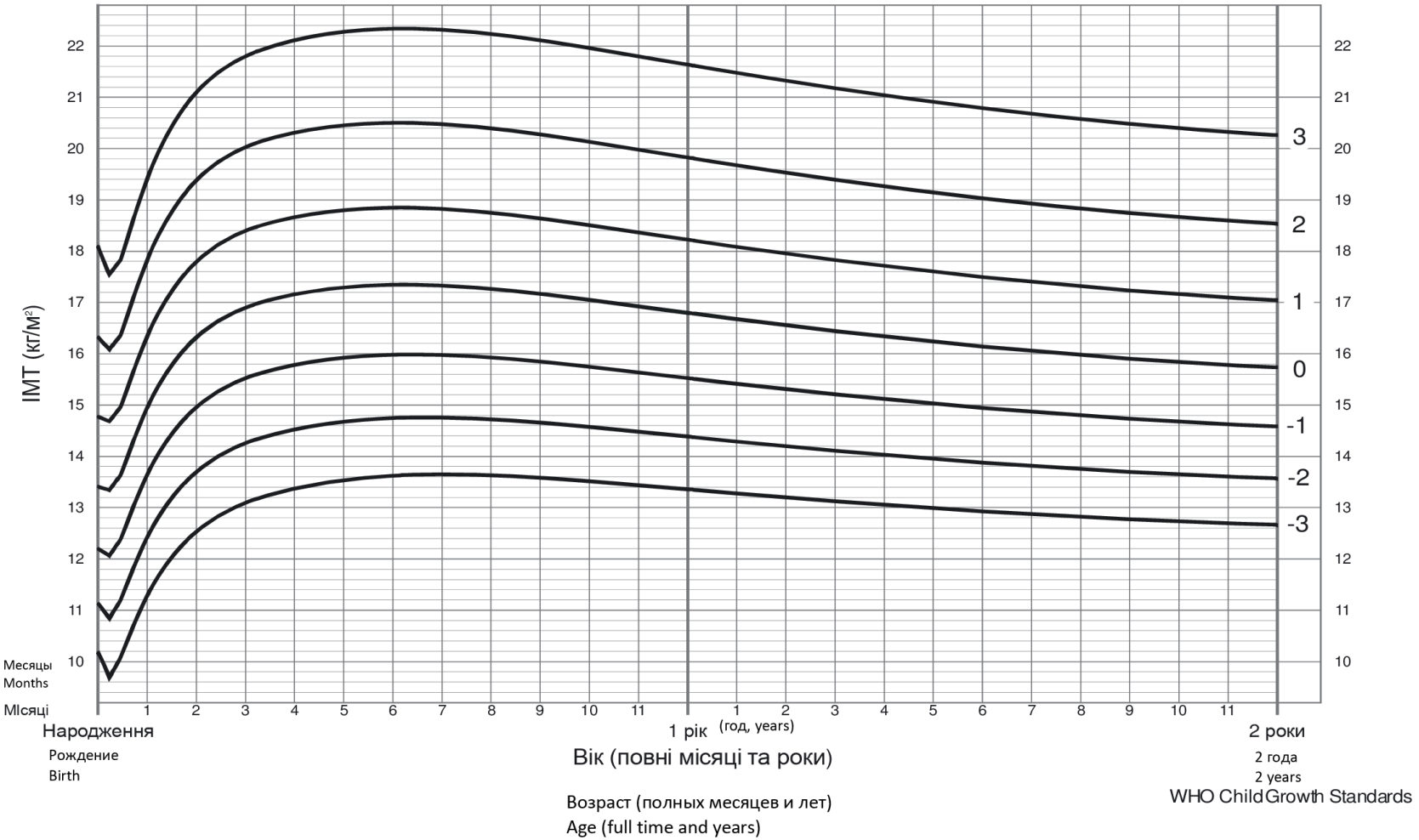
Індекс маси тіла (ІМТ), хлопчики

Від народження до 2 років (z-scores)

Индекс массы тела, мальчики (от рождения до 2 лет)

Body mass index, Boys (from birth to 2 years)

World Health Organization



WHO Child Growth Standards

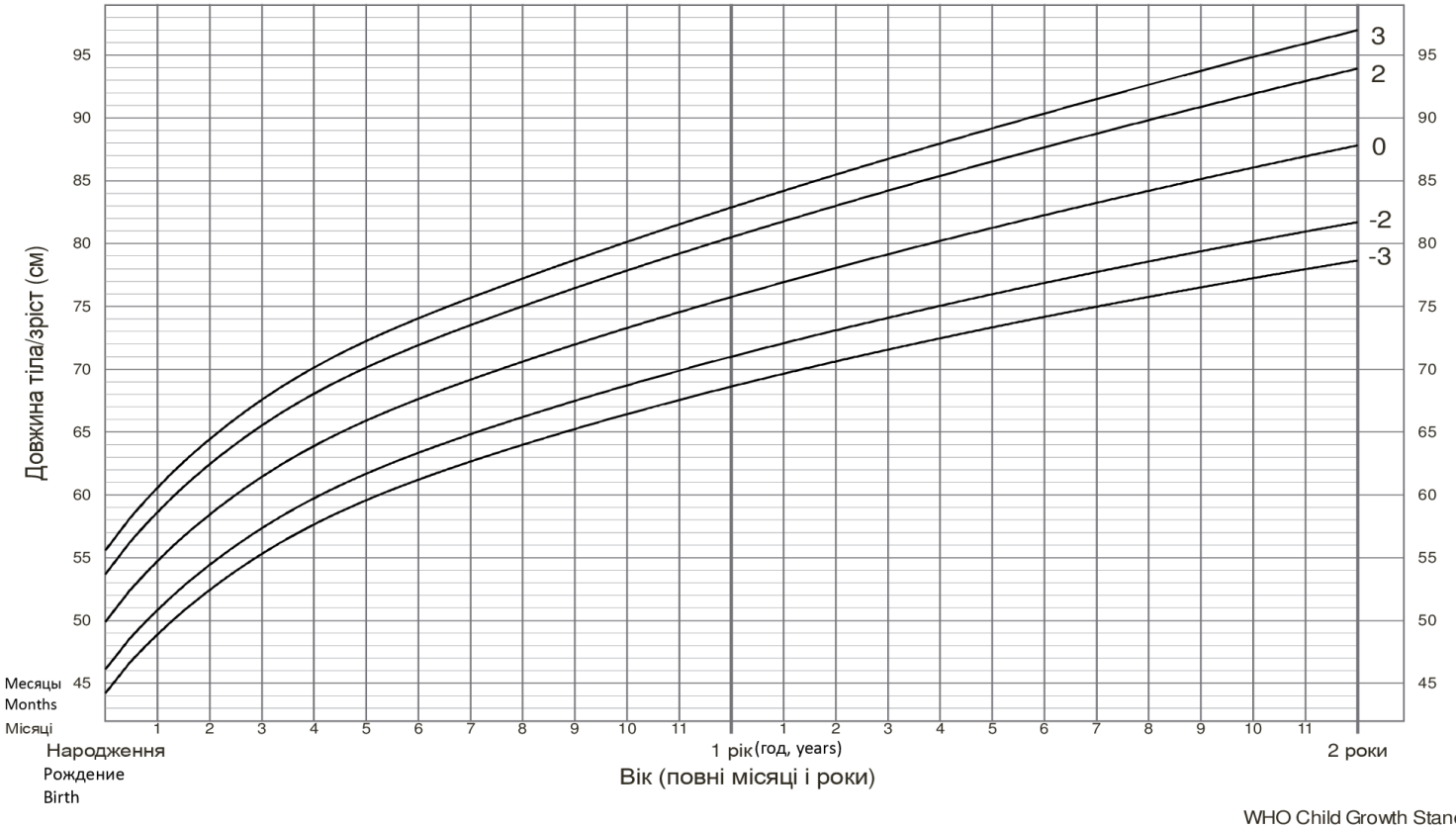
Длина тела к возрасту, мальчики
От рождения до 2 лет .

Довжина тіла/зріст до віку, хлопчики

Body length to age, Boys
(from birth to 2 years)

World Health Organization

від народження до 2-х років (z-scores)



WHO Child Growth Standards

Возраст (полных месяцев и лет)
Age (full time and years)

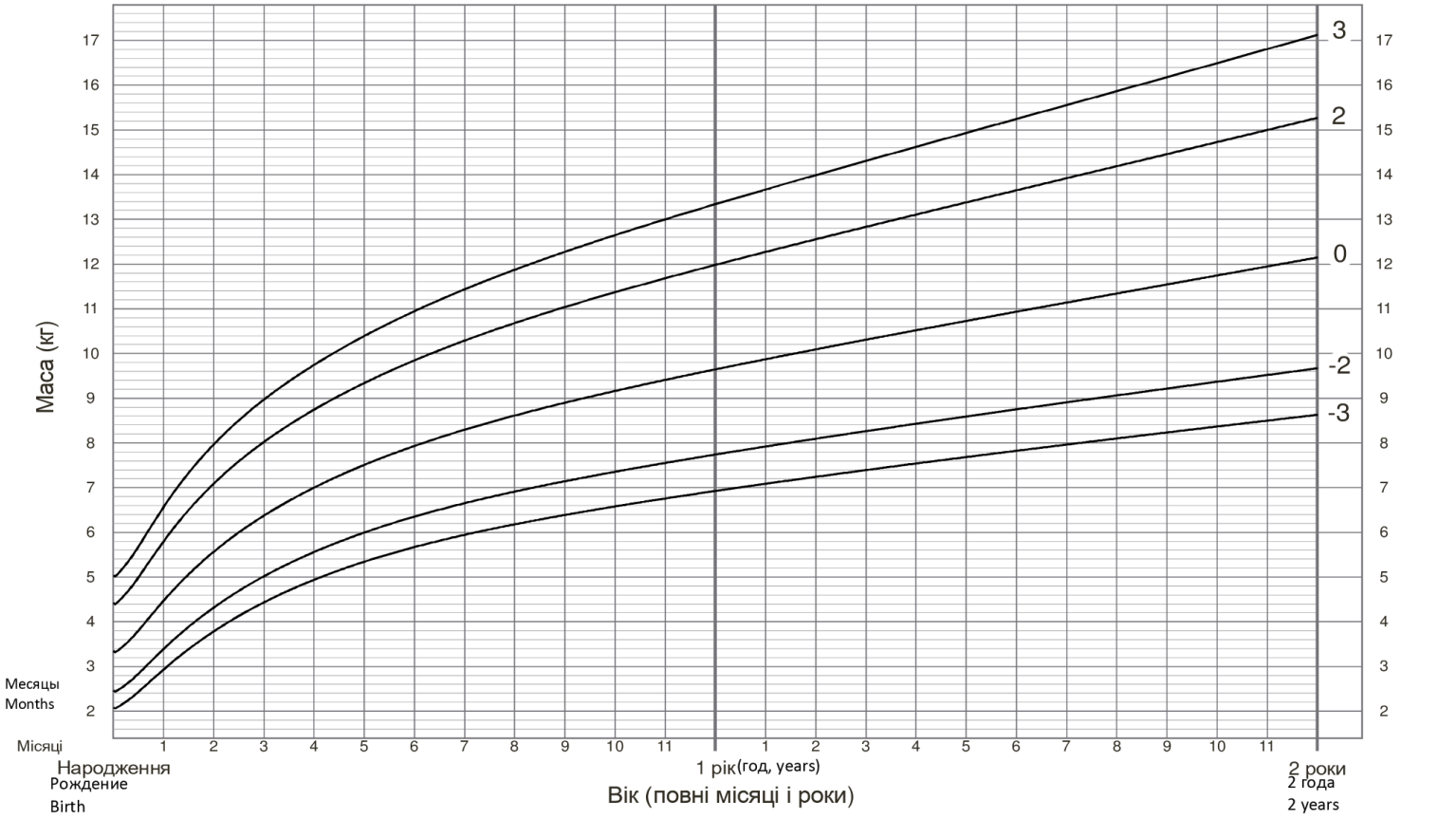
Маса до віку, хлопчики

від народження до 2 років (z-scores)

Масса к возрасту, Мальчики
(от рождения до 2 лет)

Mass to years, Boys
(from birth to 2 years)

World Health Organization



WHO Child Growth Standards

Возраст (полных месяцев и лет)
Age (full time and years)

Task 3. Assessment of the physical child development
Protein-energy deficiency

1. **Authors: Kaplina L. E., Kotova N.V.**
   Translated into English by Kozhevin RV

2. **Professional standard: child care**

3. **Competencies to be checked:**
   - Estimation of physical child development by sigmal nomograms.
   - Conclusion on the physical child development.
   - Justification of the clinical diagnosis
   - The student should be able to announce and explain the algorithm of their actions and reasoning

1. **Scenario 3:** A girl of 7 months old, born with a weight of 3500 g, with a body length of 52 cm. She is on partial breastfeeding. Twice he was ill with obstructive bronchitis, he was treated at home. During the examination, the body weight is 5900, the body length is 67 cm. The body temperature is 36.3 ° C. The skin is pink, moist, elastic. The subcutaneous fat layer is lowered on the trunk and the limbs, the turgor of soft tissues is lowered. Mucous membranes are pink. Respiratory rate 40 in 1 min, vesicular respiration. Heart rate is 140 per 1 minute. Abdomen is soft. The liver is 2 cm below the costal arc. The edge of the liver is elastic. Spleen is under the edge of a rib arch. Stool is a greasy and luster 3 times a day. Urine is light yellow.

Task: Assess the physical development of the child according to the nomograms and establish the diagnosis. Justify the diagnosis. Identify further management.

2. **Briefing 3:** You are a general practitioner and examining a girl of 7 months old, born with a weight of 3500 g, with a body length of 52 cm. She is on partial breastfeeding. Twice he was ill with obstructive bronchitis, he was treated at home. During the examination, the body weight is 5900, the body length is 67 cm. The body temperature is 36.3 ° C. The skin is pink, moist, elastic. The subcutaneous fat layer is lowered on the trunk and the limbs, the turgor of soft tissues is lowered. Mucous membranes are pink. Respiratory rate 40 in 1 min, vesicular respiration. Heart rate is 140 per 1 minute. Abdomen is soft. The liver is 2 cm below the costal arc. The edge of the liver is elastic. Spleen is under the edge of a rib arch. Stool is a greasy and luster 3 times a day. Urine is light yellow.

Task: Assess the physical development of the child according to the nomograms and establish the diagnosis. Justify the diagnosis. Identify further management.

The student must pronounce every action.

3. Assessment of the child's physical development during the first 5 years

Charts of body length / height / age

1) Set the value of full weeks, months or years and months on the horizontal axis. Point values should be placed on the vertical line (and not between the vertical lines). For example, if a child is 5.5 months, the values are applied on the division for 5 months (instead of between 5 and 6 months).

2) Set the value of body length / height on the vertical axis. Points of importance should be placed between horizontal lines. For example, if the child's body length is 60.5 cm, apply a value in the cell between the horizontal lines.

3) After drawing points based on the results of two or more surveys, you need to connect the points by the straight line in order to construct the curve and see the dynamics.

Charts of body weight / age

In order to apply the weight value on the body charts for a given age, it should:

1) Set the age value on the horizontal axis in full weeks, months or years and months. Points should be set on a vertical line (but not between vertical lines).

2) Set the the body weight to the vertical axis. Point values should be placed on the horizontal line.

3) After drawing points based on the results of two or more surveys, combine them with each other straight line to construct the curve and see the dynamics.

Charts for ratio of body mass / body length / height / age

1) Set the body length or height on the horizontal axis. Point values should be placed on the vertical line. You need to round the value to the nearest whole centimeter.

2) Apply mass to the vertical axis. Points are set on horizontal lines or between.

3) After applying the body mass / height ratio for two or more surveys, connect the dots to a straight line to construct the curve and see the dynamics.

Charts body mass index (BMI)/ age

The body mass index (BMI) is determined by the formula: body mass value divided by height in square (kg / m^2). The height indicator must be converted into meters. The result of the calculations is rounded to decimal.

In order apply to the chart the BMI for a given age, it should:

1) Set the value of age on horizontal axis in full weeks, months or years and months. Point values should be placed on the vertical line (and not between the vertical lines).

2) Put the value of the BMI on the vertical axis. Point values should be placed on the horizontal line or between the lines.

After drawing points, follow two or more reviews to combine them with a straight line to construct the curve and see the dynamics.

Interpretation of indicators of physical development

1) Values between the standard deviation lines -2 and -3 are considered to be lower than the standard deviation line "-2"

2) Values between standard deviation lines "2" and "3" are considered to be the higher standard deviation line "2".

If, the indicator is directly on the standard deviation line, it is assumed that this value falls into the category of lesser severity. For example, if the mass index for this age is on the line "-3", it is considered that the child is inadequate, but not extremely inadequate.

Interpretation of standard deviations of physical development indicators

Standard deviation	Indicators of physical development			
	Body length / height for this age	Weight for a given age	Relative mass to body / height	BMI for the given age
Above 3	See note 1	See note2	Adiposity	Adiposity
Above 2	Norm		Overweight	Overweight
Above 1	Norm		Possible risk of overweight (See note 3)	Possible risk of overweight (See note 3)
0 (медіана)	Norm	Norm	Norm	Norm
Below **−1**	Norm	Norm	Norm	Norm
Below **−2**	Growth delay (See note 4)	Insufficient weight	Depleted	Depleted
Below **−3**	Excessive growth retardation (See note 4)	Excessive deficiency weight	Very exhausted	Very exhausted

Notes:

1. A child whose growth rates fall into this category is very high.

High growth rarely presents a problem, except when it may indicate an endocrine disorder (e.g., a tumor that produces growth hormones). If you suspect an endocrine disorder, your child should be referred to a specialist for advice (for example, if a child is too high for his or her age, parents of normal height).

2. A child whose mass index for a given age falls into this category may have a physical development problem, but it is better to do so based on analysis of weight / body / height or BMI for this age.

3. The indicator above the standard deviation line 1 indicates a potential risk. The upward trend toward standard deviation line 2 indicates a risk.

4. There is a likelihood that a child with a delay or severe delay in growth will be overweight.

Assessment of physical child development

Student: **1. Finds pointson the corresponding charts that characterize anthropometric indicators, according to the task, and emphasizes the result in the check list.** **2. Evaluates each receivedresult and emphasizes the result in a check list.** **3. Writes a conclusion on the physical development of the child.**					
	Emphasize the result of evaluating the body weight to age	0 - +2Z	above +2Z		above +3Z
		0 - -2Z	Below -2Z		Below - 3Z
2.	Estimate the body weight to age	Norm			
		Lack of weight		Extremely underweight	
3.	Underline the result of assessing the body length to age	0 - +2Z	above +2Z		above +3Z
		0 - -2Z	Below -2Z		Below - 3Z
4.	Estimate the length of the body to age	Norm			
		Growth delay		Excessive growth retardation	
5.	Calculate using the calculator the body mass index and record the result				
6.	To emphasize the result of evaluation the body mass index to age	0 - +1Z	above +1Z	above +2Z	above +3Z
		0 - -1Z	Below -1Z	Below -2Z	Below - 3Z
7.	Evaluate body mass index to age	Risk of overweight	Overweight		Obesity
		Norm			
		Lack of weight	Excessive insufficient weight		
8.	Write a diagnosis based on clinical data.				

Equipment:

1. Task
2. Sigmal nomograms
3. Ruler
4. Pencil
5. Calculator

Justification of the correct answers:

1. Order of the Ministry of Health of Ukraine dated March 20, 2008 No. 149 "CLINICAL PROTOCOL OF MEDICAL CARE FOR A HEALTHY CHILD IN A VICTIM TO 3 YEARS"

2. Pediatrics in two volumes, edited by M. Aryayev, N. Kotova T2, Diseases of young children. Pulmonology. Allergology. Cardiology. Gastroenterology. Nephrology HIV infection. Primary medical and nursing help textbook - Odessa: ONMedU. - 2014 - 312 p.

Длина тела к возрасту, девочки
От рождения до 2 лет .

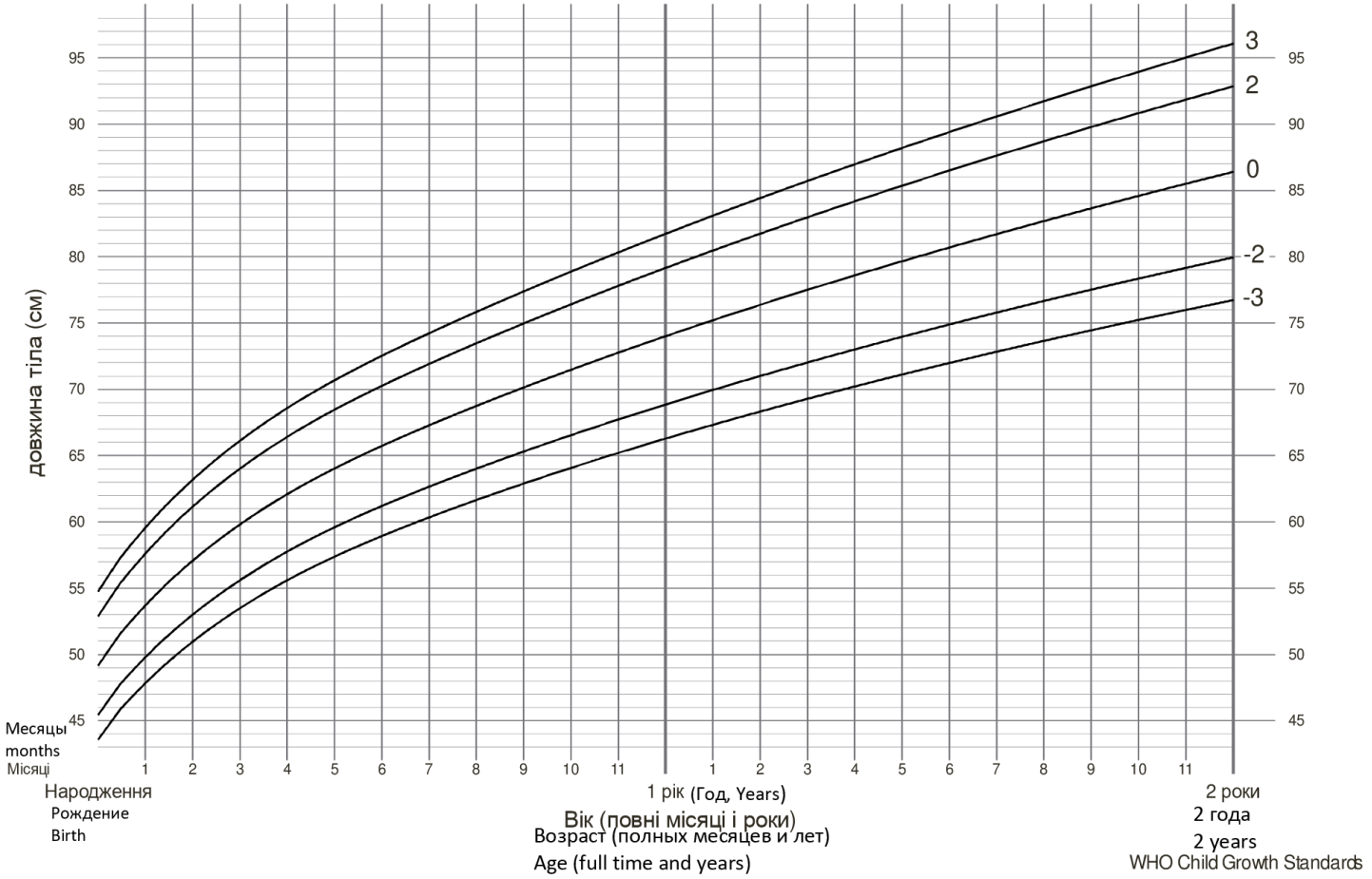
Довжина тіла до віку, дівчатка

від народження до 2-х років (z-scores)

Body length to age, Girls

(from birth to 2 years)

World Health Organization



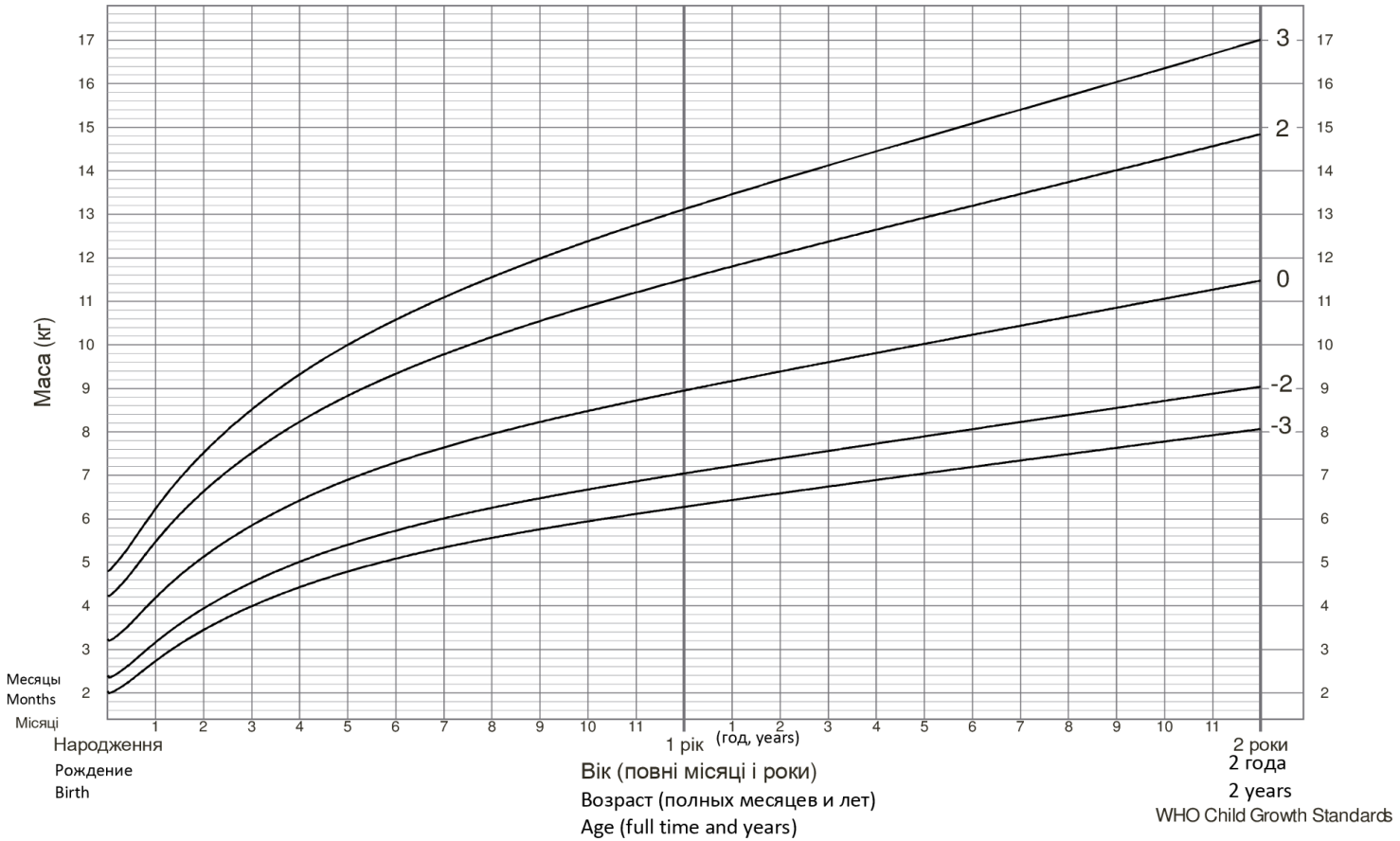
Масса к возрасту, Девочки
(от рождения до 2 лет)

Маса до віку, дівчатка

від народження до 2 років (z-scores)

Mass to years, Girls
(from birth to 2 years)

World Health Organization



WHO Child Growth Standards

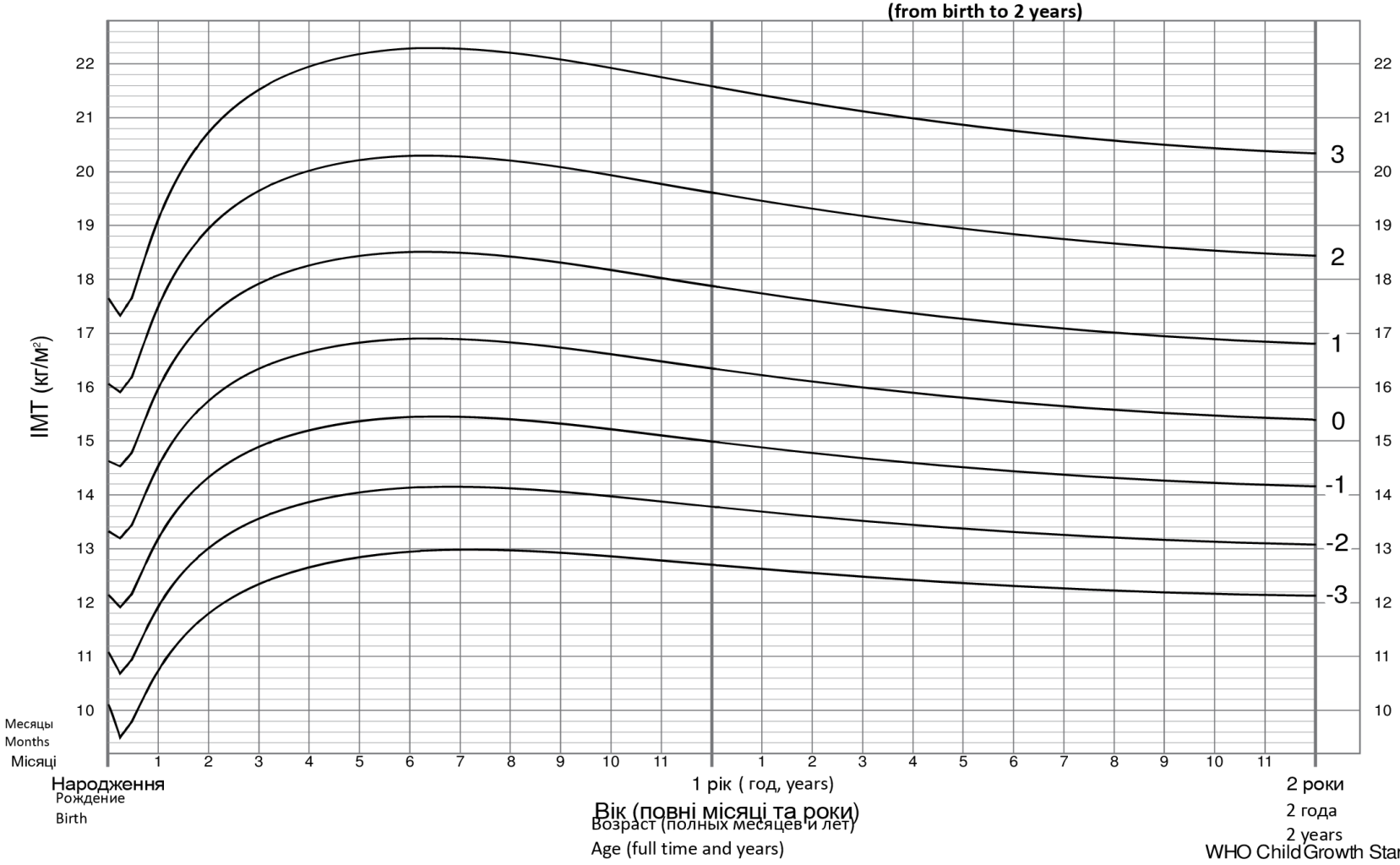
Індекс маси тіла (ІМТ), дівчатка

від народження до 2 років (z-scores)

Индекс массы тела (ИМТ), девочки (от рождения до 2 лет)

Body mass index (BMI), girls (from birth to 2 years)

World Health Organization



WHO Child Growth Standards

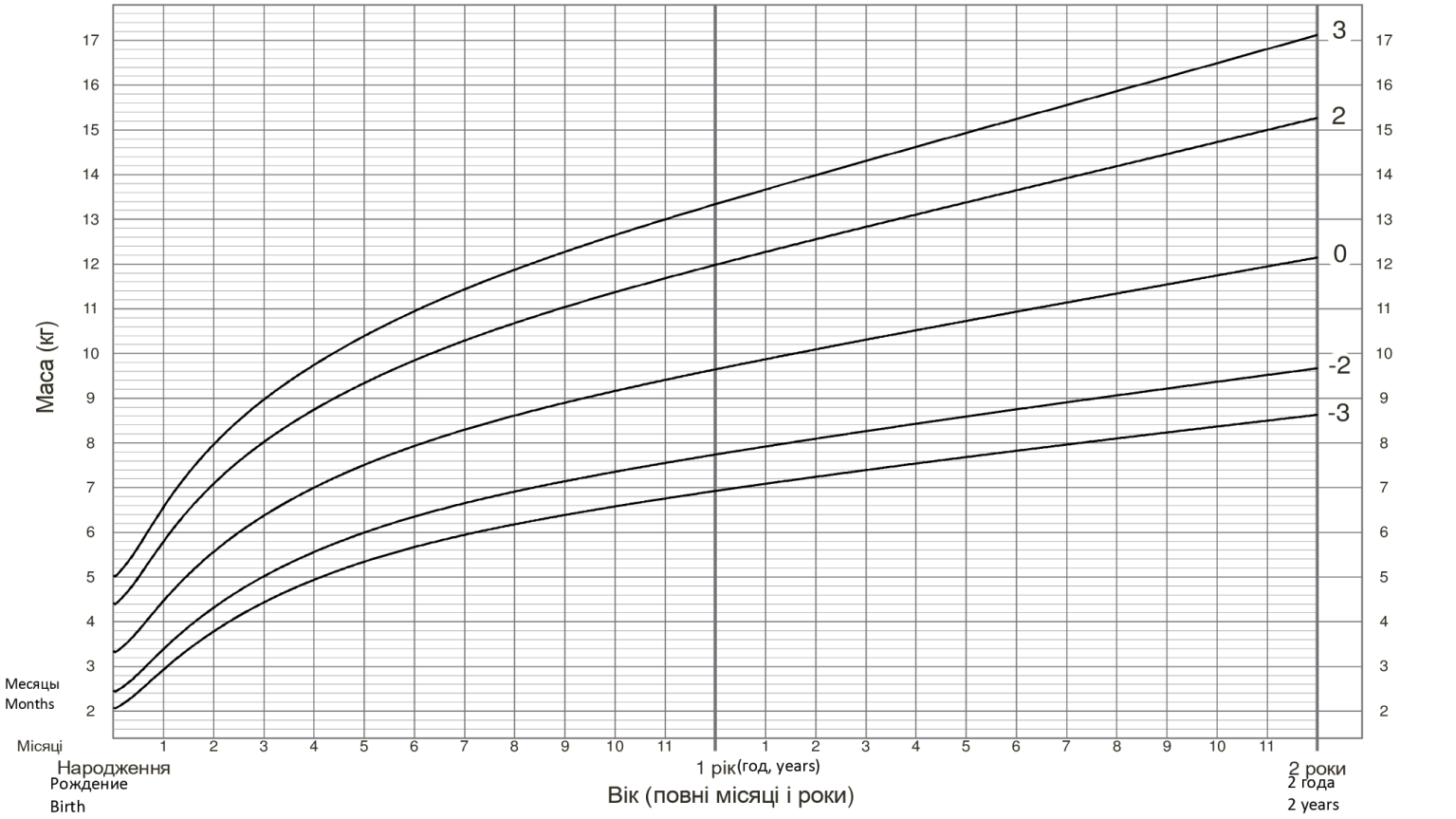
Маса до віку, хлопчики

від народження до 2 років (z-scores)

Масса к возрасту, Мальчики
(от рождения до 2 лет)

Mass to years, Boys
(from birth to 2 years)

World Health Organization



WHO Child Growth Standards

Возраст (полных месяцев и лет)
Age (full time and years)

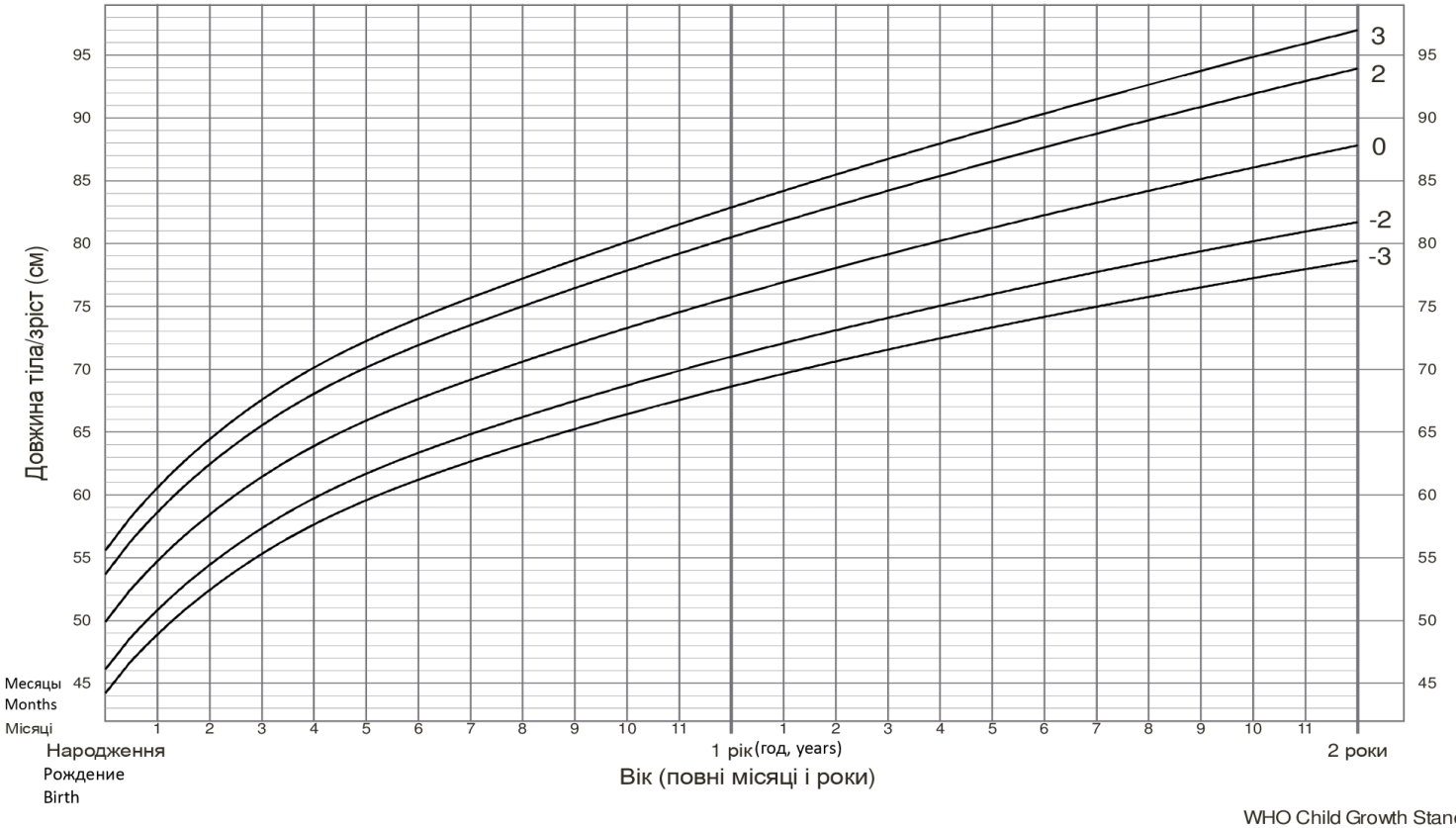
Длина тела к возрасту, мальчики
От рождения до 2 лет .

Довжина тіла/зріст до віку, хлопчики

Body length to age, Boys
(from birth to 2 years)

World Health Organization

від народження до 2-х років (z-scores)



WHO Child Growth Standards

Возраст (полных месяцев и лет)
Age (full time and years)

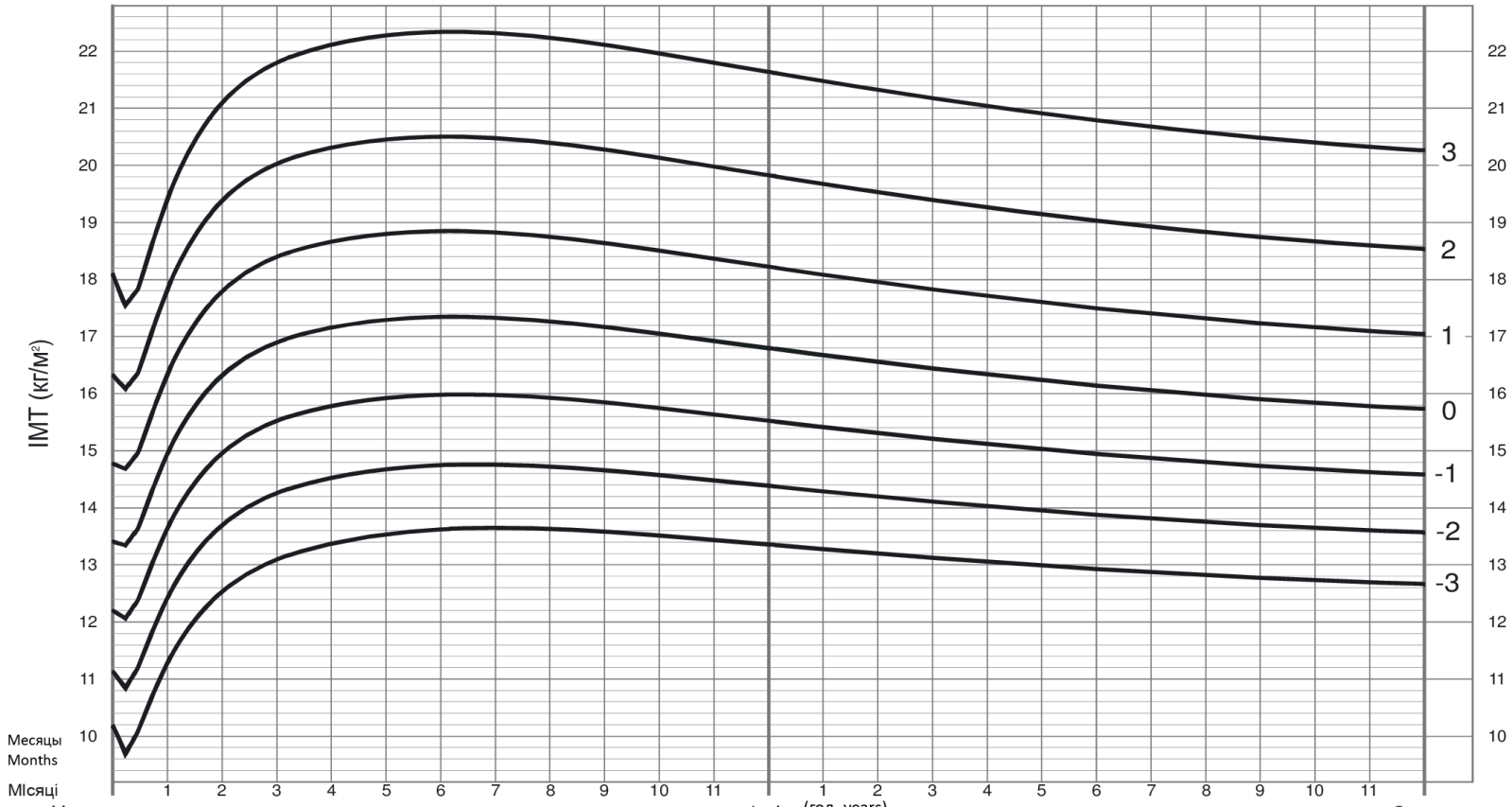
Індекс маси тіла (ІМТ), хлопчики

Від народження до 2 років (z-scores)

Индекс массы тела, мальчики
(от рождения до 2 лет)

Body mass index, Boys
(from birth to 2 years)

World Health Organization



WHO Child Growth Standards

Task 4. Assessment of the physical child development
Protein-energy deficiency

1. Authors: Kaplina L. E., Kotova N.V.
Translated into English by Biryukov VS

2. Professional standard:
Baby care

3. Competencies to be checked:
- Estimation of physical child development by sigma nomograms.
- Conclusion on the physical child development.
- Justification of the clinical diagnosis
- The student should be able to announce and explain the algorithm of their actions and reasoning

1. Scenario 4: A 6 months old girl, born with a weight of 3200 g, with a body length of 51 cm. She is on artificial feeding and receives "Semolina" 3 times a day from 3 months of age. Recently, she has considerably lost weight. A mother did not address to the help.

During examination body weight is 5000, body length is 65 cm. The body temperature is 36.3 ° C. Skin is pale, moist, elastic. The subcutaneous fat layer is absent on the trunk and the limbs, lowered on the face, the turgor of soft tissues is significantly reduced. Mucous membranes are pale. Respiratory rate is 40 per 1 min, vesicular. Heart rate is 140 per 1 minute. Abdomen is soft, enlarge in volume. The liver protrudes from the edge of costal arch to 2.5 cm, the edge is elastic. Spleen is under the edge of a costal arch. The motion is gray, with large volume 2-3 times a day. Urine has a light yellow color.

Task: Assess the physical child development by the nomograms. Justify the previous diagnosis. Identify further tactics of care.

The student must pronounce every action.

2. Briefing 4:

A family doctor examines a girl 6 months old, born with a weight 3200 g, and body lengt 51 cm. She is on artificial feeding and receives "Semolina" 3 times a day from 3 months of age. Recently, she has considerably lost weight. A mother did not address to the help.

During examination body mass is 5000, body length is 65 cm. The body temperature is 36.3 ° C. Skin is pale, moist, elastic. The subcutaneous fat layer is absent on the trunk and the limbs, lowered on the face, the turgor of soft tissues is significantly reduced. Mucous membranes are pale. Respiratory rate 40 per 1 min, vesicular. Heart rate is 140 per 1 minute. Abdomen is soft, enlarge in volume. The liver protrudes from the edge of costal arch to 2.5 cm, and has elastic edge. Spleen is under the costal edge. The motion is gray, large volume, 2-3 times a day. Urine has a light yellow color.

Task:

Assess the physical child development by the nomograms. Justify the previous diagnosis. Identify further tactics of care

3. Assessment of the child's physical development during the first 5 years

Charts of body length / age

1) Set the value of full weeks, months or years and months on the horizontal axis. Point values should be placed on the vertical line (and not between the vertical lines). For example, if a child is 5.5 months, the values are applied on the division for 5 months (instead of between 5 and 6 months).

2) Set the value of body length / height on the vertical axis. Points of importance should be placed between horizontal lines. For example, if the child's body length is 60.5 cm, apply a value in the cell between the horizontal lines.

3) After drawing points based on the results of two or more surveys, you need to connect the points by the straight line in order to construct the curve and see the dynamics.

Charts of body weight / age

In order to apply the weight value on the body charts for a given age, it should:

1) Set the age value on the horizontal axis in full weeks, months or years and months. Points should be set on a vertical line (but not between vertical lines).

2) Set the the body weight to the vertical axis. Point values should be placed on the horizontal line.

3) After drawing points based on the results of two or more surveys, combine them with each other straight line to construct the curve and see the dynamics.

Charts for ratio of body mass / body length / age

1) Set the body length or height on the horizontal axis. Point values should be placed on the vertical line. You need to round the value to the nearest whole centimeter.

2) Apply mass to the vertical axis. Points are set on horizontal lines or between.

3) After applying the body mass / height ratio for two or more surveys, connect the dots to a straight line to construct the curve and see the dynamics.

Charts body mass index (BMI)/ age

The body mass index (BMI) is determined by the formula: body mass value divided by height in square (kg / m^2). The height indicator must be converted into meters. The result of the calculations is rounded to decimal.

In order apply to the chart the BMI for a given age, it should:

1) Set the value of age on horizontal axis in full weeks, months or years and months. Point values should be placed on the vertical line (and not between the vertical lines).

2) Put the value of the BMI on the vertical axis. Point values should be placed on the horizontal line or between the lines.

After drawing points, follow two or more reviews to combine them with a straight line to construct the curve and see the dynamics.

Interpretation of indicators of physical development

1) Values between the standard deviation lines -2 and -3 are considered to be lower than the standard deviation line "-2"

2) Values between standard deviation lines "2" and "3" are considered to be the higher standard deviation line "2".

If, the indicator is directly on the standard deviation line, it is assumed that this value falls into the category of lesser severity. For example, if the mass index for this age is on the line "-3", it is considered that the child is inadequate, but not extremely inadequate.

Interpretation of standard deviations of physical development indicators

Standard deviation	Indicators of physical development			
	Body length / height for this age	Weight for a given age	Relative mass to body / height	BMI for the given age
Above 3	See note 1	See note2	Adiposity	Adiposity
Above 2	Norm		Overweight	Overweight
Above 1	Norm		Possible risk of overweight (See note 3)	Possible risk of overweight (See note 3)
0 (mediana)	Norm	Norm	Norm	Norm
Below −**1**	Norm	Norm	Norm	Norm
Below −**2**	Growth delay (See note 4)	Insufficient weight	Depleted	Depleted
Below −**3**	Excessive growth retardation (See note 4)	Excessive deficiency weight	Very exhausted	Very exhausted

Notes:

1. A child whose growth rates fall into this category is very high.

High growth rarely presents a problem, except when it may indicate an endocrine disorder (e.g., a tumor that produces growth hormones). If you suspect an endocrine disorder, your child should be referred to a specialist for advice (for example, if a child is too high for his or her age, parents of normal height).

2. A child whose mass index for a given age falls into this category may have a physical development problem, but it is better to do so based on analysis of weight / body / height or BMI for this age.

3. The indicator above the standard deviation line 1 indicates a potential risk. The upward trend toward standard deviation line 2 indicates a risk.

4. There is a likelihood that a child with a delay or severe delay in growth will be overweight.

Assessment of physical child development

<table>
<tr><td colspan="5">Student:
1. Finds on the corresponding graphs the points characterizing anthropometric indicators, according to the task, and underlines the result in the checklist
2. Evaluates each result and emphasizes the result in the checklist
3. Records the conclusion regarding the physical development of the child.</td></tr>
<tr><td rowspan="2">1</td><td rowspan="2">Find a point on the nomogram of body weight to age and emphasize the result</td><td>0 - +2σ</td><td>Above +2δ</td><td>Above +3δ</td></tr>
<tr><td>0 - -2σ</td><td>Lower -2δ</td><td>Lower - 3δ</td></tr>
<tr><td rowspan="2">2</td><td rowspan="2">Estimate the body weight to the age and emphasize the result</td><td colspan="3">Норма</td></tr>
<tr><td colspan="2">Lack of weight</td><td>Excessive deficiency weight</td></tr>
<tr><td rowspan="2">3</td><td rowspan="2">Find a point on the nomogram of body length to age and emphasize the result</td><td>0 - +2σ</td><td>Above +2δ</td><td>Above +3δ</td></tr>
<tr><td>0 - -2σ</td><td>Lower -2δ</td><td>Lower - 3δ</td></tr>
<tr><td rowspan="2">4</td><td rowspan="2">Estimate the length of the body to the age and emphasize the result</td><td colspan="3">Norm</td></tr>
<tr><td colspan="2">Growth delay</td><td>Excessive growth retardation</td></tr>
<tr><td>5</td><td>Calculate body mass index using a calculator and record the result</td><td colspan="3"></td></tr>
<tr><td rowspan="3">6</td><td rowspan="3">Find a point on the nomogram of body mass index by age and emphasize the result</td><td>0 - +1σ</td><td>above +1δ</td><td>above +2δ</td><td>above +3δ</td></tr>
<tr><td>0 - -1σ</td><td>Below -1σ</td><td>Below -2δ</td><td>Below -3δ</td></tr>
<tr><td colspan="4"></td></tr>
<tr><td rowspan="3">7</td><td rowspan="3">Evaluate body mass index to age</td><td>Risk of overweight</td><td>Overweight</td><td>Obesity</td></tr>
<tr><td colspan="3">Norm</td></tr>
<tr><td>Exhausted</td><td colspan="2">Very exhausted</td></tr>
</table>

Facilities

1. Task
2. Sigmal nomograms
3. Ruler
4. Pencil
5. Calculator

Justification of the correct answers:

1. Order of the Ministry of Health of Ukraine dated March 20, 2008 No. 149 "CLINICAL PROTOCOL OF MEDICAL CARE FOR A HEALTHY CHILD IN A VICTIM TO 3 YEARS"

2. Pediatrics in two volumes, edited by M. Aryayev, N. Kotova T2, Diseases of young children. Pulmonology. Allergology. Cardiology. Gastroenterology. Nephrology HIV infection. Primary medical and nursing help textbook - Odessa: ONMedU. - 2014 - 312 p.

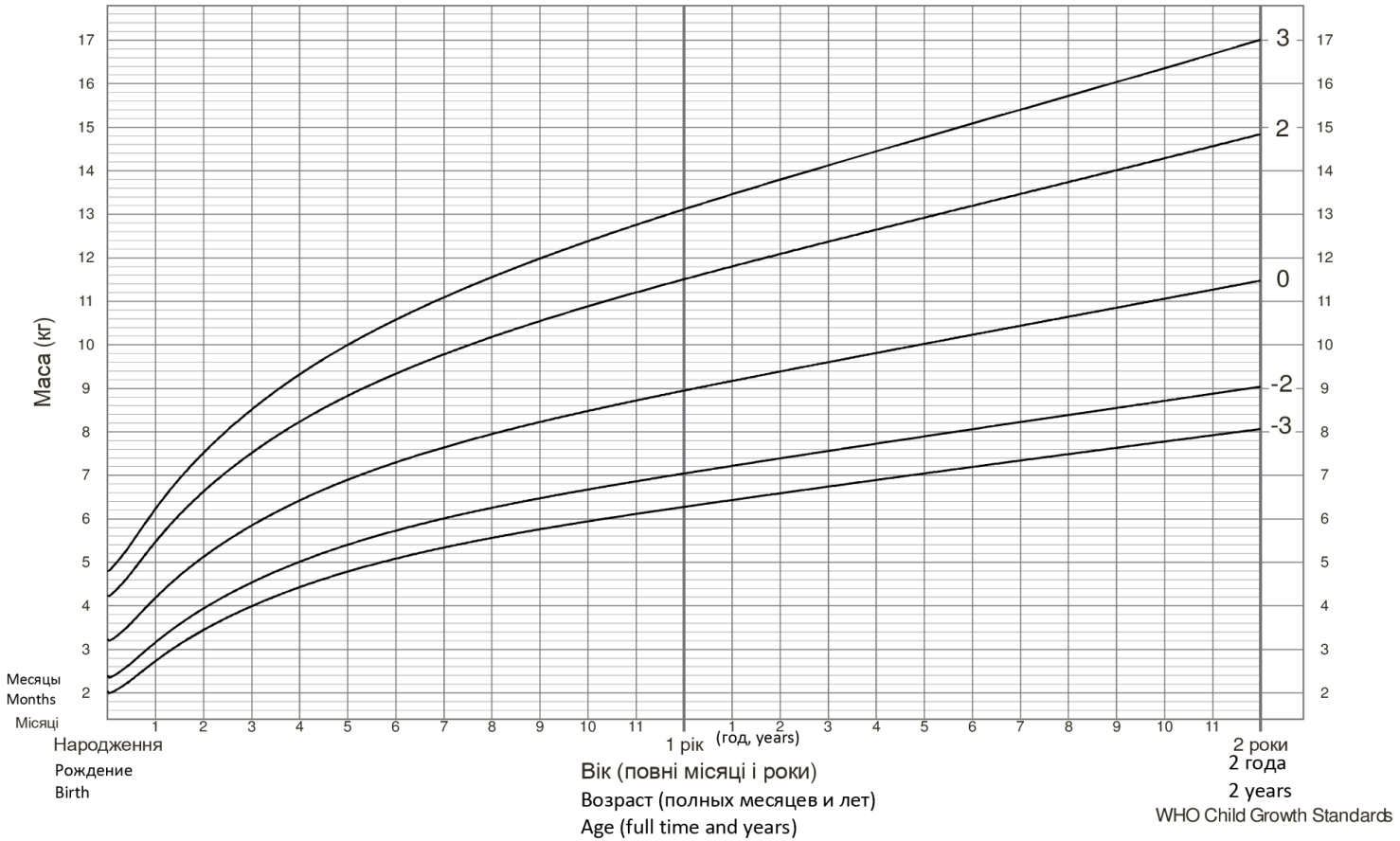
Масса к возрасту, Девочки
(от рождения до 2 лет)

Маса до віку, дівчатка

від народження до 2 років (z-scores)

Mass to years, Girls
(from birth to 2 years)

World Health Organization



WHO Child Growth Standards

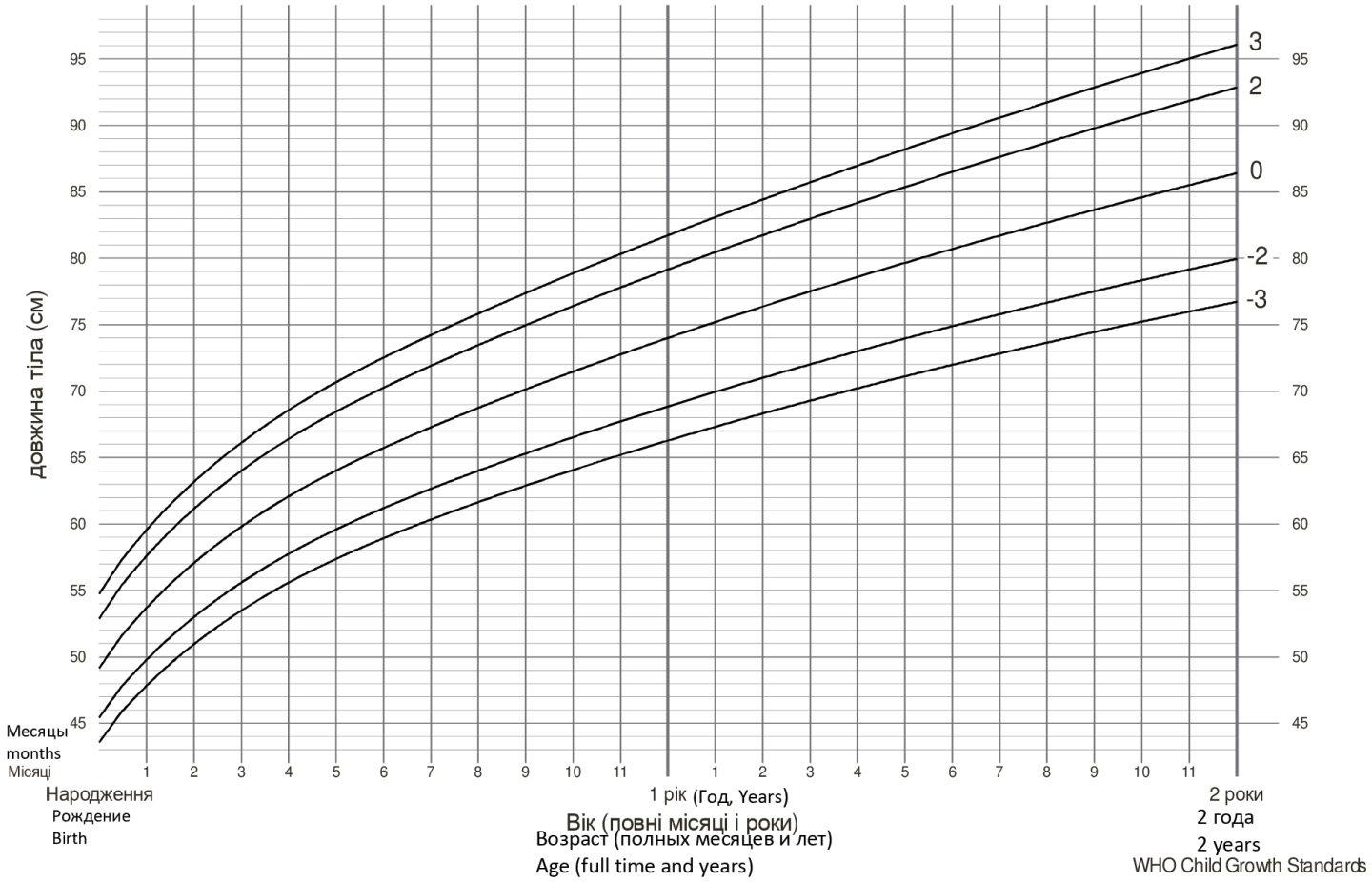
Длина тела к возрасту, девочки
От рождения до 2 лет .

Довжина тіла до віку, дівчатка

від народження до 2-х років (z-scores)

Body length to age, Girls
(from birth to 2 years)

World Health Organization



WHO Child Growth Standards

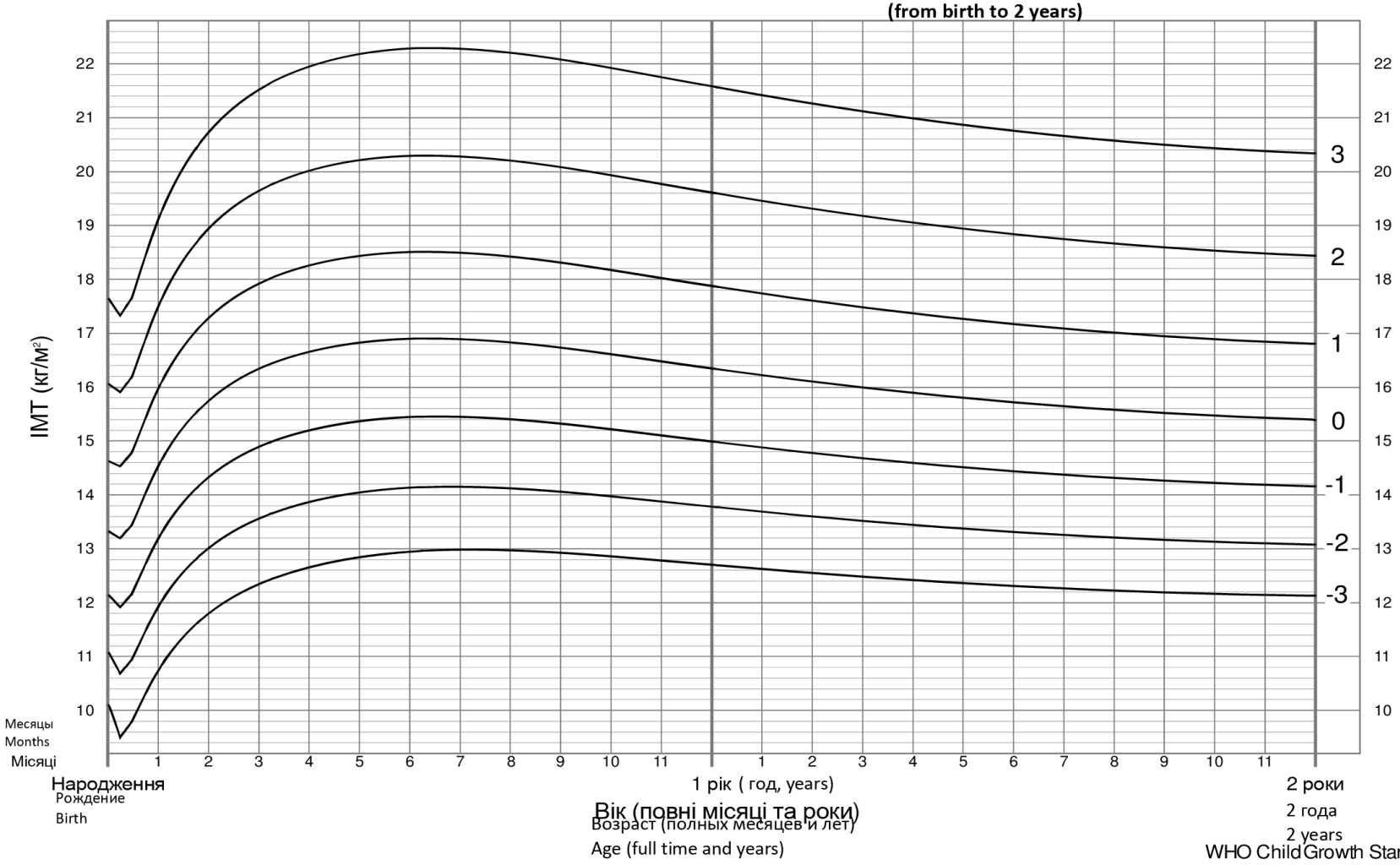
Індекс маси тіла (ІМТ), дівчатка

від народження до 2 років (z-scores)

Индекс массы тела (ИМТ), девочки (от рождения до 2 лет)

Body mass index (BMI), girls (from birth to 2 years)

World Health Organization



WHO Child Growth Standards

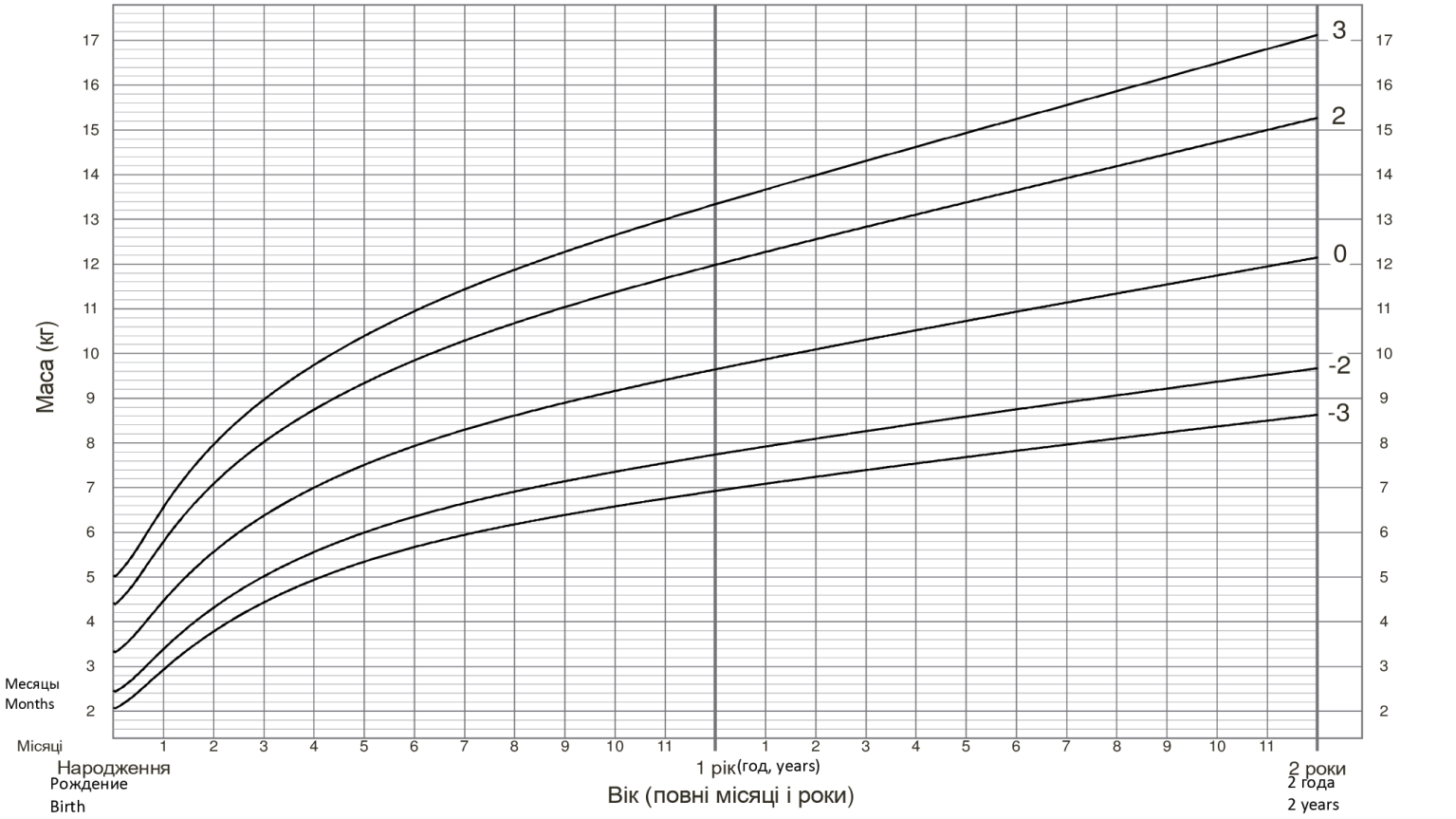
Маса до віку, хлопчики

від народження до 2 років (z-scores)

Масса к возрасту, Мальчики
(от рождения до 2 лет)

Mass to years, Boys
(from birth to 2 years)

World Health Organization



WHO Child Growth Standards

Возраст (полных месяцев и лет)
Age (full time and years)

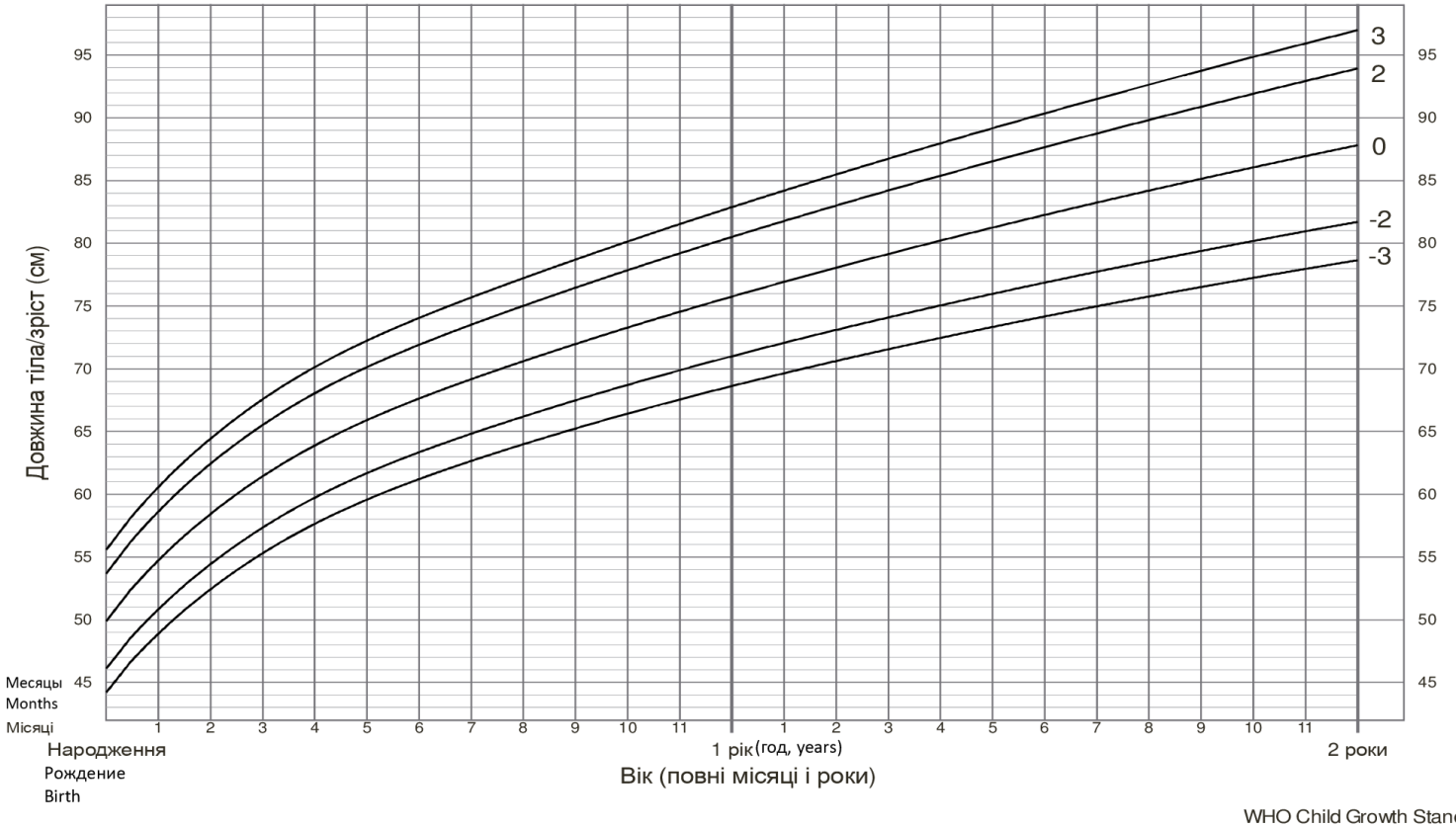
Длина тела к возрасту, мальчики
От рождения до 2 лет .

Довжина тіла/зріст до віку, хлопчики

Body length to age, Boys
(from birth to 2 years)

World Health Organization

від народження до 2-х років (z-scores)



WHO Child Growth Standards

Возраст (полных месяцев и лет)
Age (full time and years)

New WHO Child Growth Standards. 2006

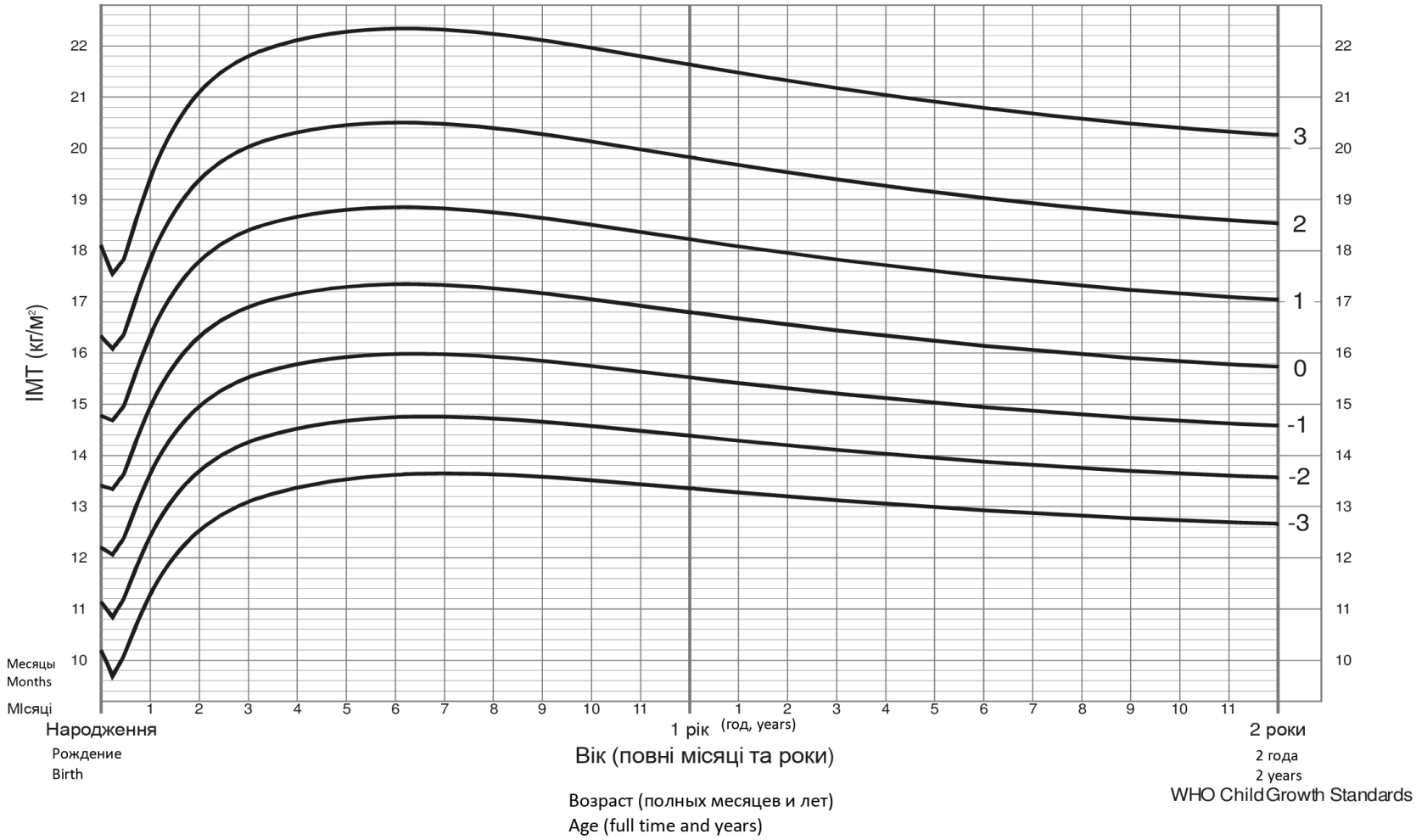
Індекс маси тіла (ІМТ), хлопчики

Від народження до 2 років (z-scores)

Индекс массы тела, мальчики
(от рождения до 2 лет)

Body mass index, Boys
(from birth to 2 years)

World Health Organization



Task 5. Assessment the physical child development
The Protein-energy deficiency

1. **Authors: Kaplina L. E., Kotova N.V.**
   Translated into English by Biryukov VS
2. **Professional standard**
   Baby care
3. **Competencies to be checked**
   - Estimation of physical child development by sigma nomograms.
   - Conclusion on the physical child development.
   - Justification the clinical diagnosis

1. **Scenario 5:** A girl of 5 months old, born with a weight of 3500 g, with a body length of 54 cm. Artificially fed with unadapted milk. Lately lost weight. The mother did not address for help.

During examination, body weight is 5200, body length is 60 cm. The body temperature is 36.3 ° C. Skin is pale, moist, elastic. The subcutaneous fat layer is lowered on the trunk and the limbs, stored on the face. The turgor of soft tissues is lowered. Mucous membranes are pale. Vesicular Respiration, 40 in 1 min,. Heart rate is 136 for 1 min. Abdomen is soft. The liver protrudes from the costal arch at 2 cm, with elastic edge. Spleen is under the edge of a costal arch. The motion is yellow once a day. Urine has a light yellow color.

Task: Assess the physical child development by the nomograms. Justify the previous diagnosis. Identify further tactics of driving.

The student must pronounce every action.

2. Briefing 5: A family doctor examines a girl of 5 months old, born with a weight 3500 g, body length 54 cm. She has an artificial feeding with unadapted milk. Lately she lost weight. The mother did not address for help.

During examination, body weight is 5200, body length is 60 cm. The body temperature is 36.3 ° C. Skin is pale, moist, elastic. The subcutaneous fat layer is lowered on the trunk and the limbs, stored on the face. The turgor of soft tissues is lowered. Mucous membranes are pale. Respiratory rate 40 per 1 min, Respiration vesicular. Heart rate is 136 per 1 min. Abdomen is soft. The liver protrudes from the costal arch on 2 cm, with elastic edge. Spleen is under the edge of a costal arch. Flushing yellow once a day. Urine has a light yellow.

Task: Assess the physical child development by the nomograms. Justify the previous diagnosis. Identify further tactics of care.

The student must pronounce every action.

3. Assessment of the child's physical development during the first 5 years

Charts are body length / age

1) Set the value of full weeks, months or years and months on the horizontal axis. Point values should be placed on the vertical line (and not between the vertical lines). For example, if a child is 5.5 months, the values are applied to the division for 5 months (instead of between 5 and 6 months).

2) Set the value of body length / height on the vertical axis. Points of importance should be placed on or between horizontal lines. For example, if the child's body length is 60.5 cm, apply a value in the cell between the horizontal lines.

3) After drawing points based on the results of two or more surveys, you need to connect the points to the straight line in order to construct the curve and see the dynamics.

Charts are body weight / age

1) In order to apply the weight of the body for a given age should be:

2) Set the value of the age in the horizontal axis in full weeks, months or years and months. Points should be set on a vertical line (but not between vertical lines).

3) Set the weight of the body to the vertical axis. Point values should be placed on the horizontal line.

4) After drawing points based on the results of two or more surveys, combine them with each other straight line to construct the curve and see the dynamics.

Charts for body mass / body length / age

1) Set the length of the body or height on the horizontal axis. Point values should be placed on the vertical line. You need to round the value to the nearest whole centimeter.

2) Apply mass to the vertical axis. Points are set to or between horizontal lines.

3) After applying the body mass / height ratio for two or more surveys, connect the dots to a straight line to construct the curve and see the dynamics.

Charts body mass index / age

The body mass index is determined by the formula: body mass value divided by height in square (kg/m²). The height indicator must be translated into meters. The result of the calculations is rounded to decimal.

In order to apply to the chart the index of the body weight index for a given age, it should be:

1) Set the value of the age in the horizontal axis in full weeks, months or years and months. Point values should be placed on the vertical line (and not between the vertical lines).

2) Put the value of the BMI on the vertical axis. Point values should be placed on the horizontal line or between the lines.

After drawing points, follow two or more reviews to combine them with a straight line to construct the curve and see the dynamics.

Interpretation of indicators of physical development

1) Values between the standard deviation lines -2 and -3 are considered to be lower than the standard deviation line "-2"

2) Values between standard deviation lines "2" and "3" are considered to be the higher standard deviation line "2".

If, the indicator is directly on the standard deviation line, it is assumed that this value falls into the category of lesser severity. For example, if the mass index for this age is on the line "-3", it is considered that the child is inadequate, but not extremely insignificant.

Interpretation of standard deviations of physical development indicators

Standard deviation	Indicators of physical development			
	Body length / height for this age	Weight for a given age	Relative mass to body / height	BMI for the given age
Above 3	See note 1	See note2	Adiposity	Adiposity
Above 2	Norm		Overweight	Overweight
Above 1	Norm		Possible risk of overweight (See note 3)	Possible risk of overweight (See note 3)
0 (mediana)	Norm	Norm	Norm	Norm
Below **−1**	Norm	Norm	Norm	Norm
Below **−2**	Growth delay (See note 4)	Insufficient weight	Depleted	Depleted
Below **−3**	Excessive growth retardation (See note 4)	Excessive deficiency weight	Very exhausted	Very exhausted

Notes:

1. A child whose growth rates fall into this category is very high.

High growth rarely presents a problem, except when it may indicate an endocrine disorder (e.g., a tumor that produces growth hormones). If you suspect an endocrine disorder, your child should be referred to a specialist for advice (for example, if a child is too high for his or her age, parents of normal height).

2. A child whose mass index for a given age falls into this category may have a physical development problem, but it is better to do so based on analysis of weight / body / height or BMI for this age.

3. The indicator above the standard deviation line 1 indicates a potential risk. The upward trend toward standard deviation line 2 indicates a risk.

4. There is likelihood that a child with a delay or severe delay in growth will be overweight.

Assessment of physical child development

<table>
<tr><td colspan="5">Student:
1. Finds on the corresponding graphs the points characterizing anthropometric indicators, according to the task, and underlines the result in the checklist
2. Evaluates each result and emphasizes the result in the checklist
3. Records the conclusion regarding the physical development of the child.</td></tr>
<tr><td rowspan="2">1</td><td rowspan="2">Find a point on the nomogram of body weight to age and emphasize the result</td><td>0 - +2σ</td><td>Above +2δ</td><td>Above +3δ</td></tr>
<tr><td>0 - -2σ</td><td>Lower -2δ</td><td>Lower - 3δ</td></tr>
<tr><td rowspan="2">2</td><td rowspan="2">Estimate the body weight to the age and emphasize the result</td><td colspan="3">Norm</td></tr>
<tr><td colspan="2">Lack of weight</td><td>Excessive deficiency weight</td></tr>
<tr><td rowspan="2">3</td><td rowspan="2">Find a point on the nomogram of body length to age and emphasize the result</td><td>0 - +2σ</td><td>Above +2δ</td><td>Above +3δ</td></tr>
<tr><td>0 - -2σ</td><td>Lower -2δ</td><td>Lower - 3δ</td></tr>
<tr><td rowspan="2">4</td><td rowspan="2">Estimate the length of the body to the age and emphasize the result</td><td colspan="3">Norm</td></tr>
<tr><td colspan="2">Growth delay</td><td>Excessive growth retardation</td></tr>
<tr><td>5</td><td>Calculate body mass index using a calculator and record the result</td><td colspan="3"></td></tr>
<tr><td rowspan="3">6</td><td rowspan="3">Find a point on the nomogram of body mass index by age and emphasize the result</td><td>0 - +1σ</td><td>above +1δ</td><td>above +2δ</td><td>above +3δ</td></tr>
<tr><td>0 - -1σ</td><td>Below -1σ</td><td>Below -2δ</td><td>Below -3δ</td></tr>
<tr><td colspan="4"></td></tr>
<tr><td rowspan="3">7</td><td rowspan="3">Evaluate body mass index to age</td><td>Risk of overweight</td><td>Overweight</td><td>Obesity</td></tr>
<tr><td colspan="3">Norm</td></tr>
<tr><td>Exhausted</td><td colspan="2">Very exhausted</td></tr>
</table>

Facilities

1. Task
2. Sigmal nomograms
3. Ruler
4. Pencil
5. Calculator

Justification of the correct answers:

1. Order of the Ministry of Health of Ukraine dated March 20, 2008 No. 149 "CLINICAL PROTOCOL OF MEDICAL CARE FOR A HEALTHY CHILD IN A VICTIM TO 3 YEARS"

2. Pediatrics in two volumes, edited by M. Aryayev, N. Kotova T2, Diseases of young children. Pulmonology. Allergology. Cardiology. Gastroenterology. Nephrology HIV infection. Primary medical and nursing help textbook - Odessa: ONMedU. - 2014 - 312 p.

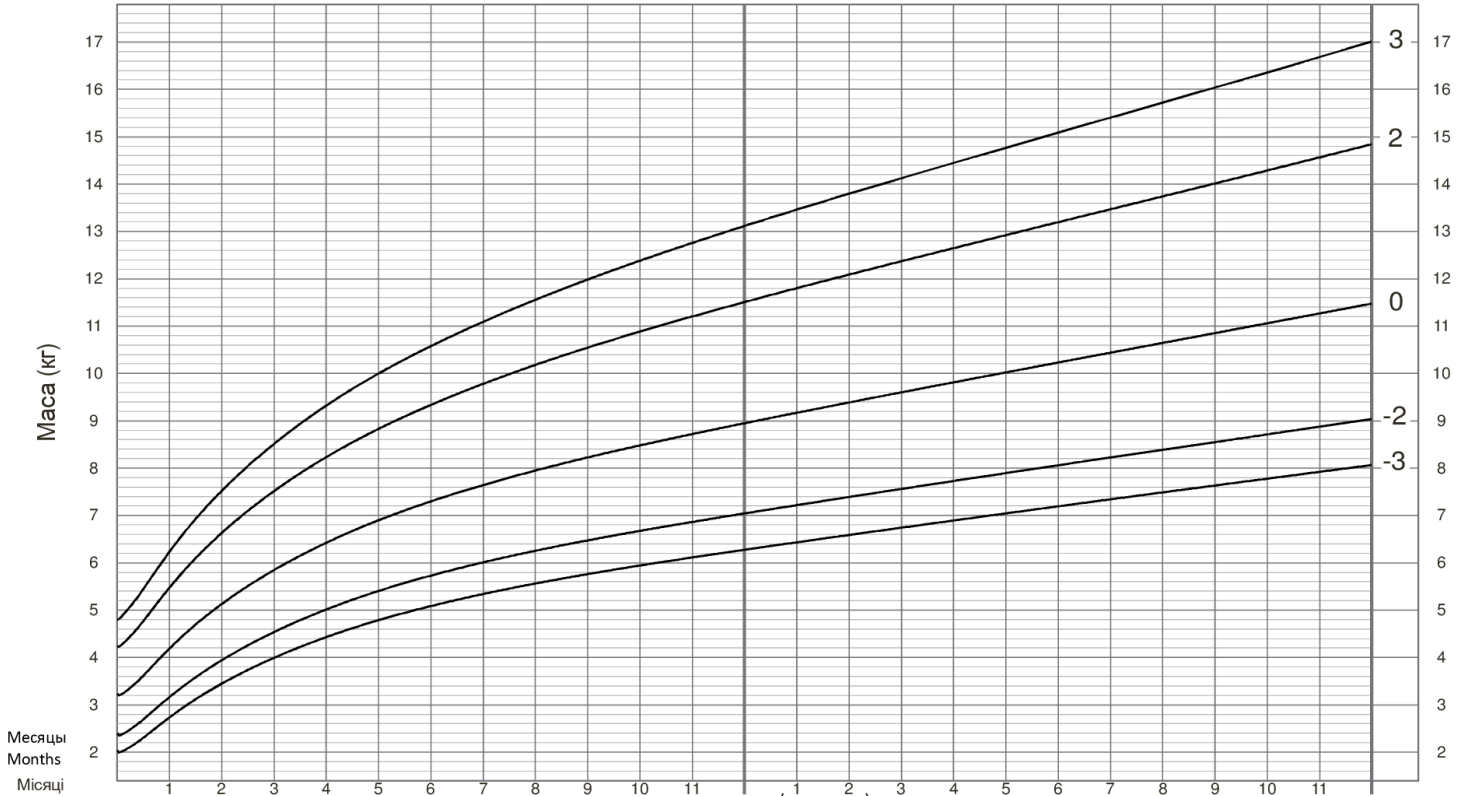
Масса к возрасту, Девочки
(от рождения до 2 лет)

Маса до віку, дівчатка

від народження до 2 років (z-scores)

Mass to years, Girls
(from birth to 2 years)

World Health Organization



WHO Child Growth Standards

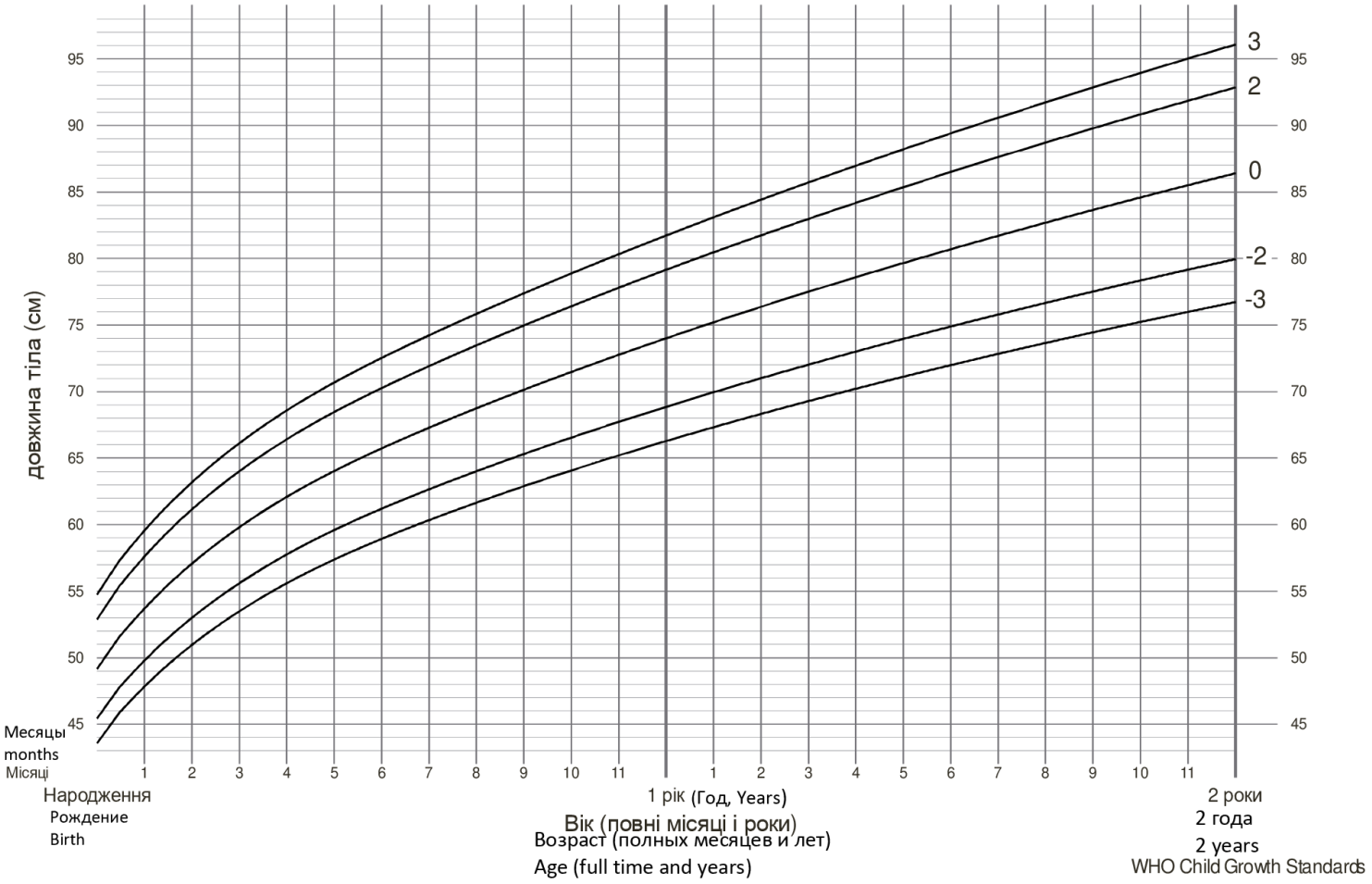
Длина тела к возрасту, девочки
От рождения до 2 лет .

Довжина тіла до віку, дівчатка

від народження до 2-х років (z-scores)

Body length to age, Girls
(from birth to 2 years)

World Health Organization



WHO Child Growth Standards

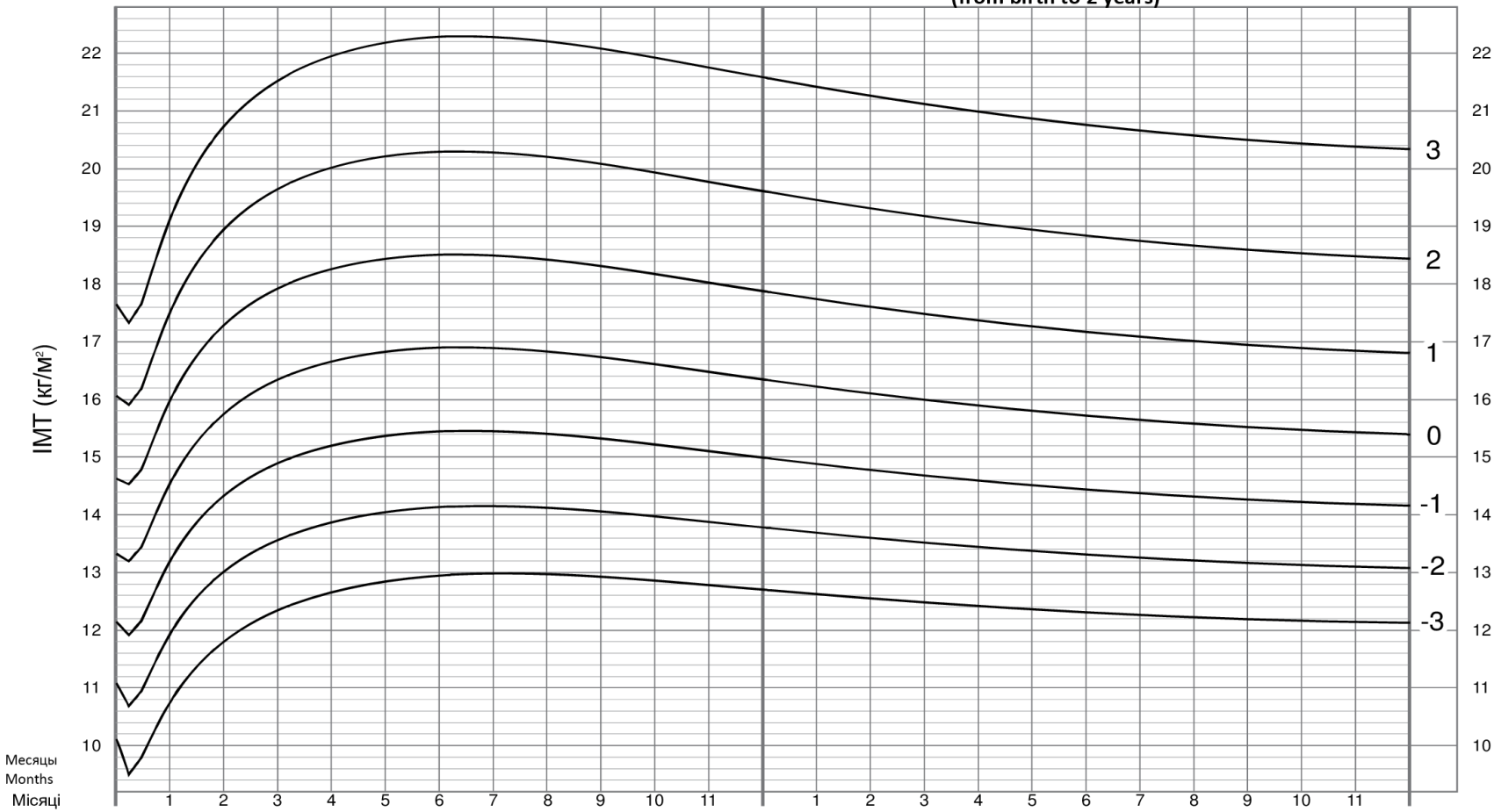
Індекс маси тіла (ІМТ), дівчатка

від народження до 2 років (z-scores)

Индекс массы тела (ИМТ), девочки (от рождения до 2 лет)

Body mass index (BMI), girls (from birth to 2 years)

World Health Organization



WHO Child Growth Standards

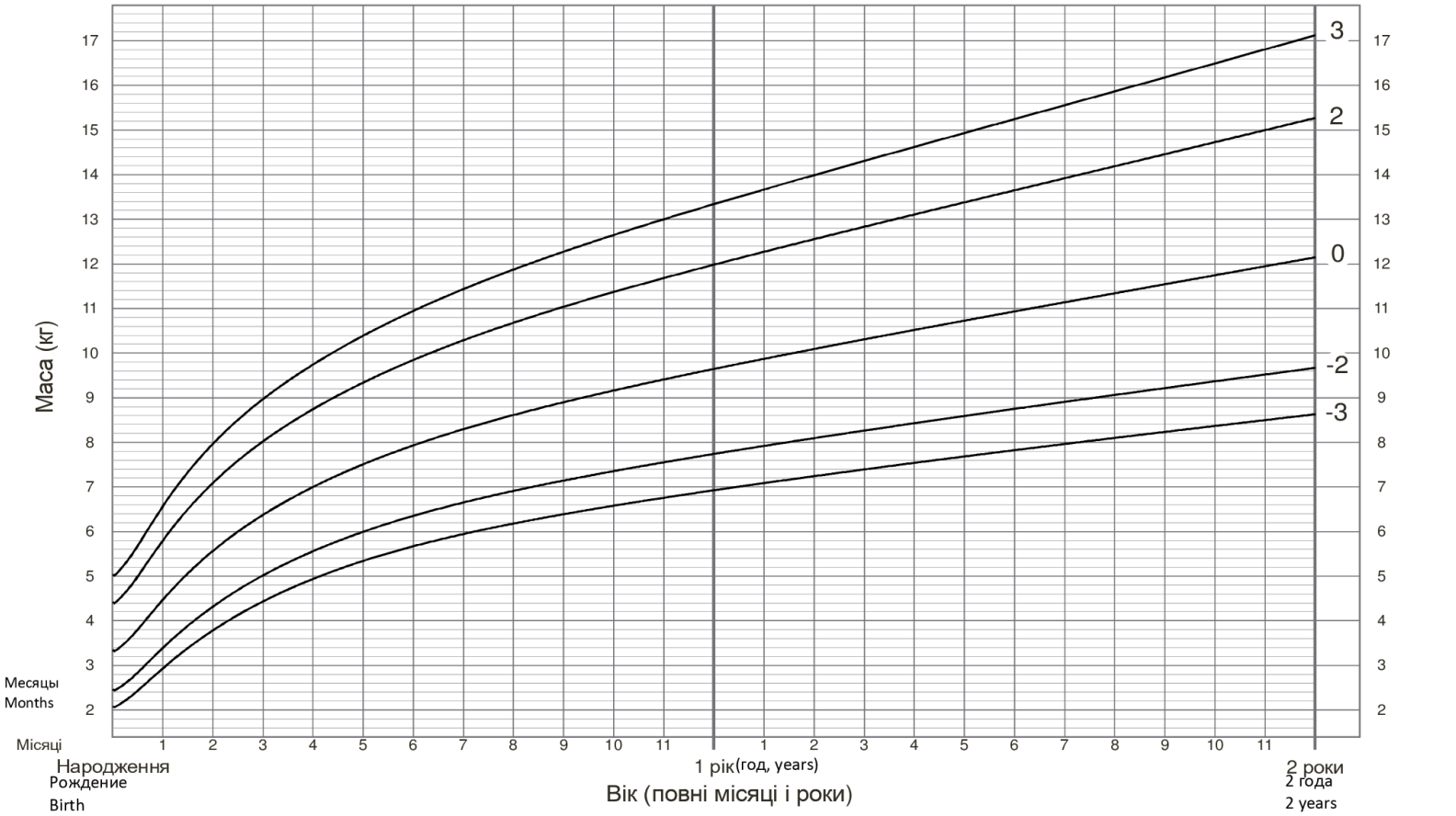
Маса до віку, хлопчики

від народження до 2 років (z-scores)

Масса к возрасту, Мальчики
(от рождения до 2 лет)

Mass to years, Boys
(from birth to 2 years)

World Health Organization



WHO Child Growth Standards

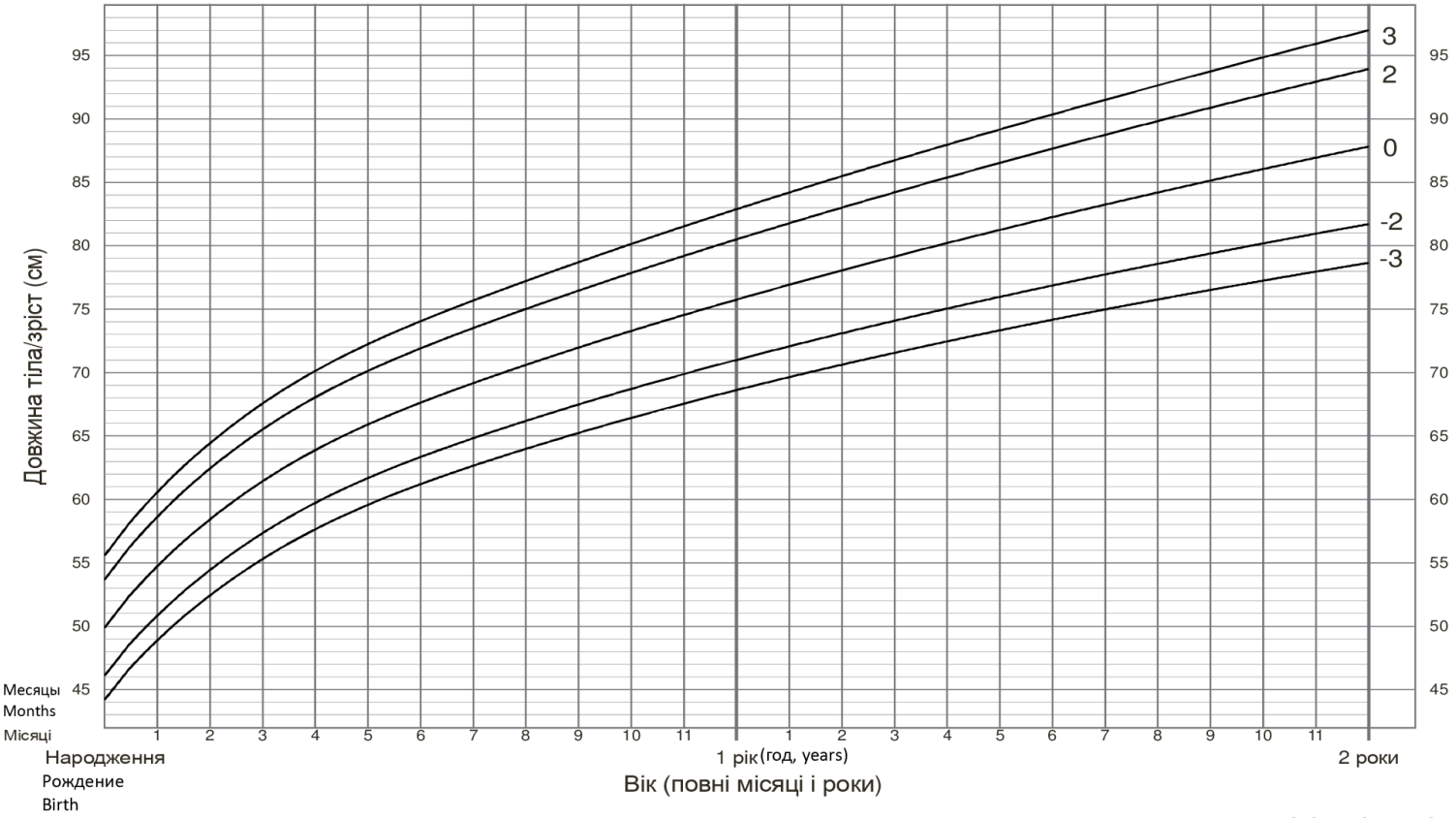
Длина тела к возрасту, мальчики
От рождения до 2 лет .

Довжина тіла/зріст до віку, хлопчики

Body length to age, Boys
(from birth to 2 years)

World Health Organization

від народження до 2-х років (z-scores)



WHO Child Growth Standards

Возраст (полных месяцев и лет)
Age (full time and years)

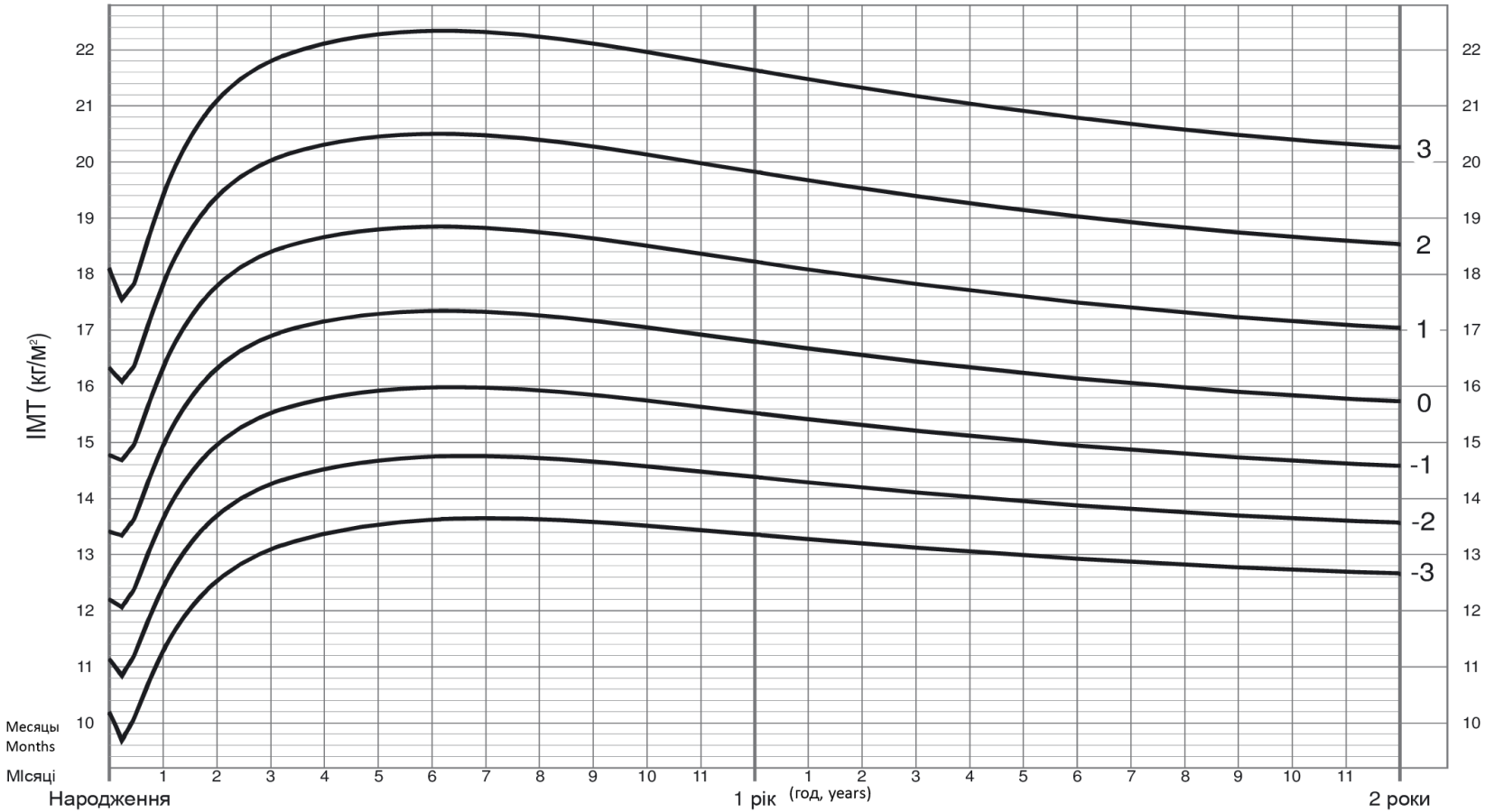
Індекс маси тіла (ІМТ), хлопчики

Від народження до 2 років (z-scores)

Индекс массы тела, мальчики (от рождения до 2 лет)

Body mass index, Boys (from birth to 2 years)

World Health Organization



WHO Child Growth Standards

Task 6. Assessment of child's physical development. Obesity

1. **Authors: Kaplina L. E., Kotova N.V.**
   Translated into English by Voloshchuk T.V.

2. **Professional standard**
   Child's Management

3. **Competency checking**
   - Assessment of child's physical development.
   - Suggestion about child's physical development.
   - Make the diagnosis. Classify the illness.

1. **Scenario 6:** Boy is 4 years and 10 months old. The child was born full term, with birth weight 3900 g, length 53 cm. Appetite elevated, the child eats a portion like an adult. The diet is dominated by sweets. Spends a lot of free time watching cartoons on the tablet. Parents of the child are overweight.

Examination of the child: body weight is 28 kg, height is 110 cm. Child replies on the questions according to the age. Body temperature is 36.5 °C. The skin is pink, moderately moist. The subcutaneous fat tissue is overdeveloped, uniformly distributed. Turgor is satisfactory. Mucous membranes are pink. Respiratory rate is 32 per 1 min, vesicular. Heart rate is 102 per 1 min. Abdomen is soft. The liver and spleen are at the edge of the costal arch. Stool is once per day. Urine is light yellow.

Task: Assess the physical development of the child according to the nomograms and make the diagnosis.

2. **Briefing 6:** You are Family Doctor. You examine a 4 years and 10 month old boy. Yhe boy is 4 years and 10 months old. The child was born full term, with birth weight 3900 g, length 53 cm. Appetite elevated, the child eats a portion like an adult. The diet is dominated by sweets. Spends a lot of free time watching cartoons on the tablet. Parents of the child are overweight.

Examination of the child: body weight is 28 kg, height is 110 cm. Child replies on the questions according to the age. Body temperature is 36.5 °C. The skin is pink, moderately moist. The subcutaneous fat tissue is overdeveloped, uniformly distributed. Turgor is satisfactory. Mucous membranes are pink. Respiratory rate is 32 per 1 min, vesicular. Heart rate is 102 per 1 min. Abdomen is soft. The liver and spleen are at the edge of the costal arch. Stool once per day. Urine is light yellow.

Task: Assess the physical development of the child according to the nomograms and make the diagnosis.

The student must pronounce every action.

Assessment of child's physical development

1. Find the patient's anthropometrical parameters on appropriate nomogram.
2. Assess result and mark this result on the Check-list.
3. Write the conclusion about child's physical development.

1.	Find the point on "Weight for age" nomogram, underline the result on the Check-list	0 - +2σ	More +2δ	More +3δ
		0 - -2σ	Less -2δ	Less - 3δ
2.	Assess and classify the result "Weight for age"	Normal		
		Excess weight	Obesity	
3.	Find the point on "Height for age" nomogram, underline the result on the Check-list	0 - +2σ	More +2δ	More +3δ
		0 - -2σ	Less -2δ	Less - 3δ
4.	Assess and classify the result "Height for age"	Normal		
		Growth retardation	Excessive growth retardation	
5.	Calculate the BMI	✓ 28 : 1,21 = 23,14		
6.	Find the point on "BMI for age" nomogram, underline the result on the Check-list	0 - +1σ	More +1δ	More +2δ	More +3δ
		0 - -1σ	Less -1δ	Less -2δ	Less - 3δ
7.	Classify the "BMI for age"	Risk of excessive weight	Excessive weight	Obesity
		Normal		
		Exhausted	Very exhausted	
8.	**Write the conclusion about child's physical development** **Obesity, alimentary-constitutional form**			

3. Assessment of the child's physical development during the first 5 years

Charts of body length / height / age

1) Set the value of full weeks, months or years and months on the horizontal axis. Point values should be placed on the vertical line (and not between the vertical lines). For example, if a child is 5.5 months, the values are applied on the division for 5 months (instead of between 5 and 6 months).

2) Set the value of body length / height on the vertical axis. Points of importance should be placed between horizontal lines. For example, if the child's body length is 60.5 cm, apply a value in the cell between the horizontal lines.

3) After drawing points based on the results of two or more surveys, you need to connect the points by the straight line in order to construct the curve and see the dynamics.

Charts of body weight / age

In order to apply the weight value on the body charts for a given age, it should:

1) Set the age value on the horizontal axis in full weeks, months or years and months. Points should be set on a vertical line (but not between vertical lines).

2) Set the the body weight to the vertical axis. Point values should be placed on the horizontal line.

3) After drawing points based on the results of two or more surveys, combine them with each other straight line to construct the curve and see the dynamics.

Charts for ratio of body mass / body length / height / age

1) Set the body length or height on the horizontal axis. Point values should be placed on the vertical line. You need to round the value to the nearest whole centimeter.

2) Apply mass to the vertical axis. Points are set on horizontal lines or between.

3) After applying the body mass / height ratio for two or more surveys, connect the dots to a straight line to construct the curve and see the dynamics.

Charts body mass index (BMI)/ age

The body mass index (BMI) is determined by the formula: body mass value divided by height in square (kg / m^2). The height indicator must be converted into meters. The result of the calculations is rounded to decimal.

In order apply to the chart the BMI for a given age, it should:

1) Set the value of age on horizontal axis in full weeks, months or years and months. Point values should be placed on the vertical line (and not between the vertical lines).

2) Put the value of the BMI on the vertical axis. Point values should be placed on the horizontal line or between the lines.

After drawing points, follow two or more reviews to combine them with a straight line to construct the curve and see the dynamics.

Interpretation of indicators of physical development

1) Values between the standard deviation lines -2 and -3 are considered to be lower than the standard deviation line "-2"

2) Values between standard deviation lines "2" and "3" are considered to be the higher standard deviation line "2".

If, the indicator is directly on the standard deviation line, it is assumed that this value falls into the category of lesser severity. For example, if the mass index for this age is on the line "-3", it is considered that the child is inadequate, but not extremely inadequate.

Interpretation of standard deviations of physical development indicators

Standard deviation	Indicators of physical development			
	Body length / height for this age	Weight for a given age	Relative mass to body / height	BMI for the given age
Above 3	See note 1	See note2	Adiposity	Adiposity
Above 2	Norm		Overweight	Overweight
Above 1	Norm		Possible risk of overweight (See note 3)	Possible risk of overweight (See note 3)
0 (median)	Norm	Norm	Norm	Norm
Below **−1**	Norm	Norm	Norm	Norm
Below **−2**	Growth delay (See note 4)	Insufficient weight	Depleted	Depleted
Below **−3**	Excessive growth retardation (See note 4)	Excessive deficiency weight	Very exhausted	Very exhausted

Notes:

1. A child whose growth rates fall into this category is very high.

High growth rarely presents a problem, except when it may indicate an endocrine disorder (e.g., a tumor that produces growth hormones). If you suspect an endocrine disorder, your child should be referred to a specialist for advice (for example, if a child is too high for his or her age, parents of normal height).

2. A child whose mass index for a given age falls into this category may have a physical development problem, but it is better to do so based on analysis of weight / body / height or BMI for this age.

3. The indicator above the standard deviation line 1 indicates a potential risk. The upward trend toward standard deviation line 2 indicates a risk.

4. There is a likelihood that a child with a delay or severe delay in growth will be overweight.

Equipment:

1. Task
2. Sigmal nomograms
3. Ruler
4. Pencil
5. Calculator

Justification of the correct answers:

1. Order of the Ministry of Health of Ukraine dated March 20, 2008 No. 149 "CLINICAL PROTOCOL OF MEDICAL CARE FOR A HEALTHY CHILD IN A VICTIM TO 3 YEARS"

2. Pediatrics in two volumes, edited by M. Aryayev, N. Kotova T2, Diseases of young children. Pulmonology. Allergology. Cardiology. Gastroenterology. Nephrology HIV infection. Primary medical and nursing help textbook - Odessa: ONMedU. - 2014 - 312 p.

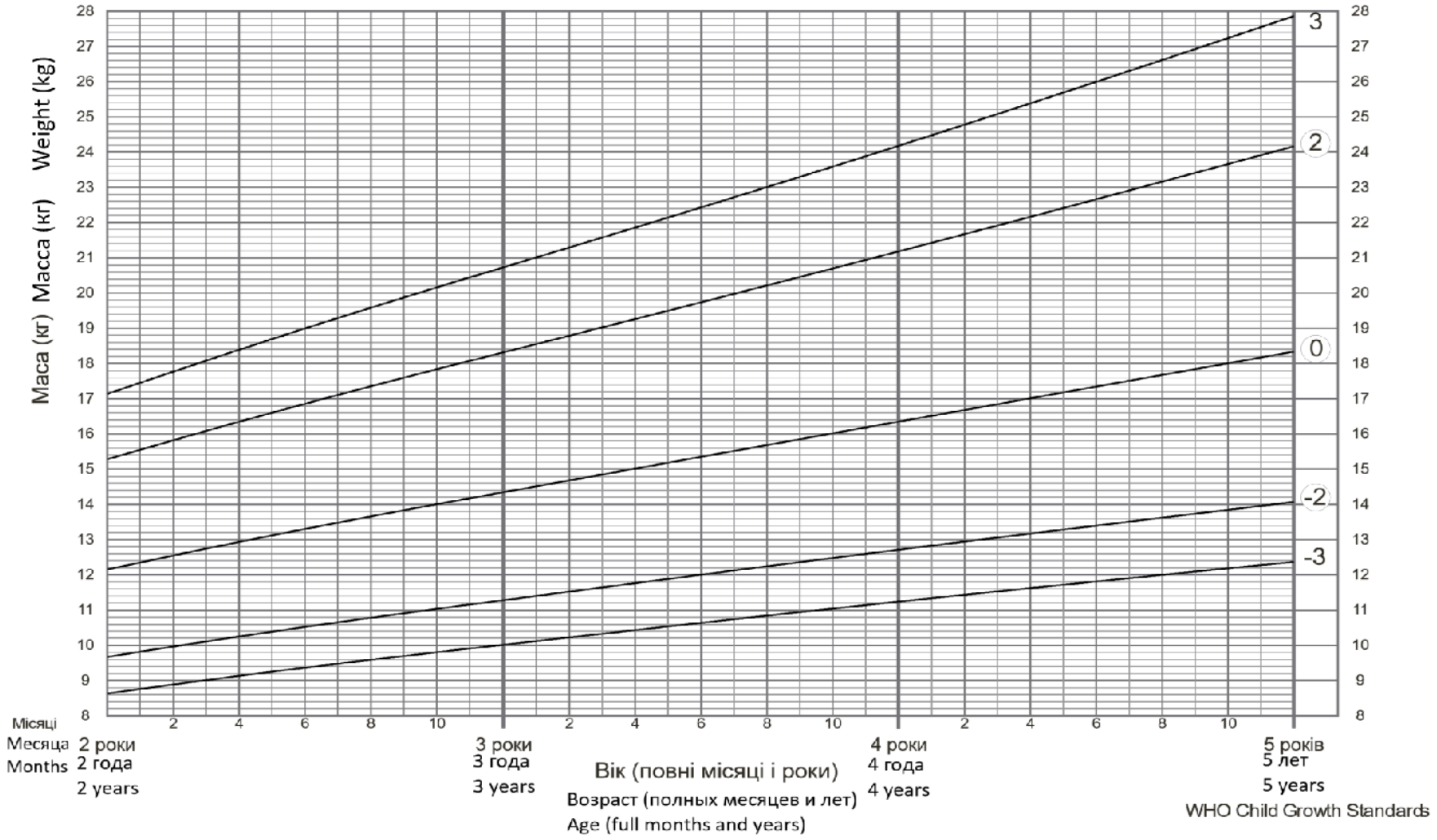
Масса к возрасту, мальчики.
От 2 до 5 лет.

Маса до віку, хлопчики

від 2 до 5 років (z-scores)

World Health Organization

Weight to age, boys from 2 to 5 years



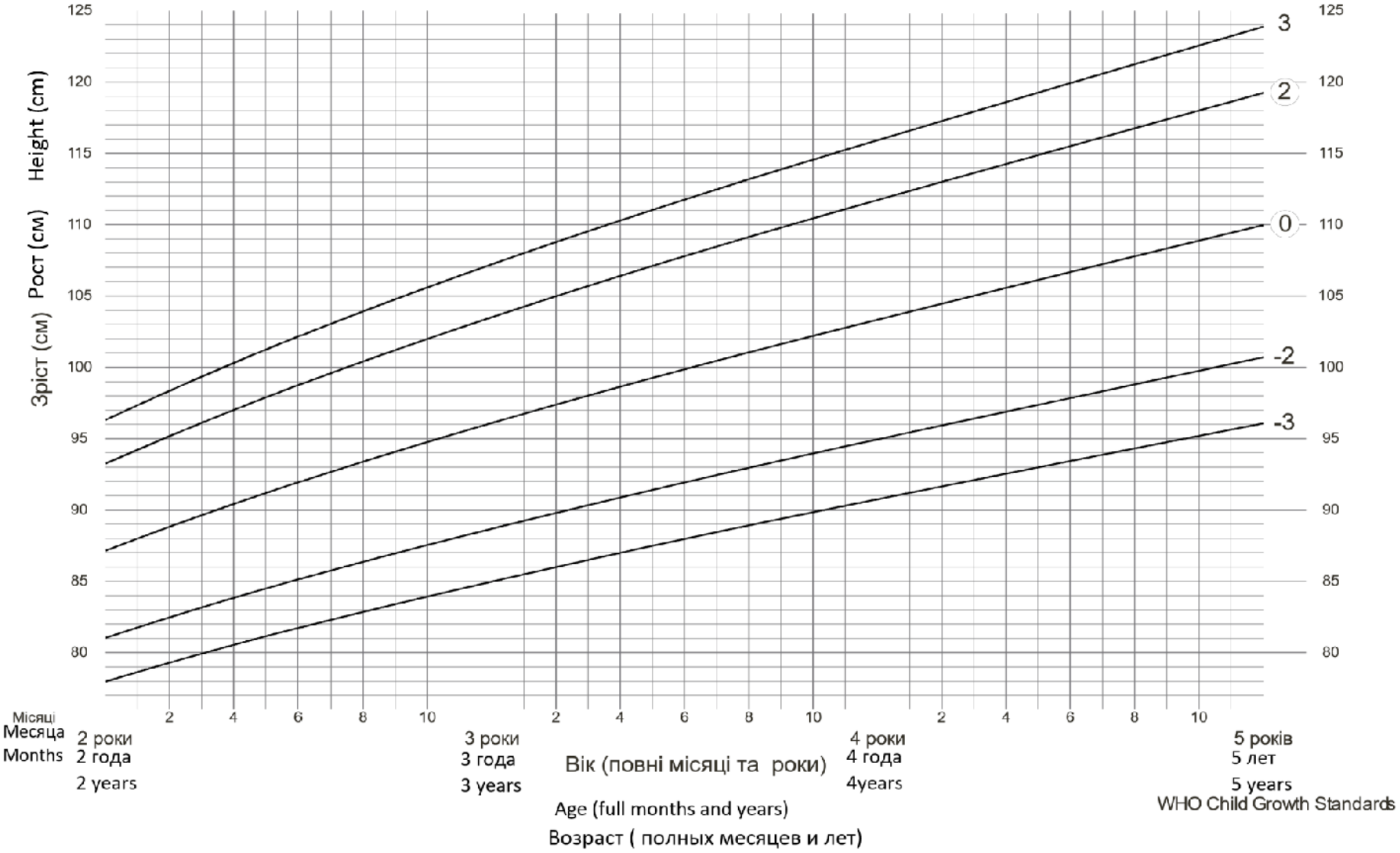
Рост к возрасту, Мальчики
(От 2 до 5 лет)

Зріст до віку, хлопчики

від 2 до 5 років (z-scores)

World Health Organization

Height to age, boys from 2 to 5



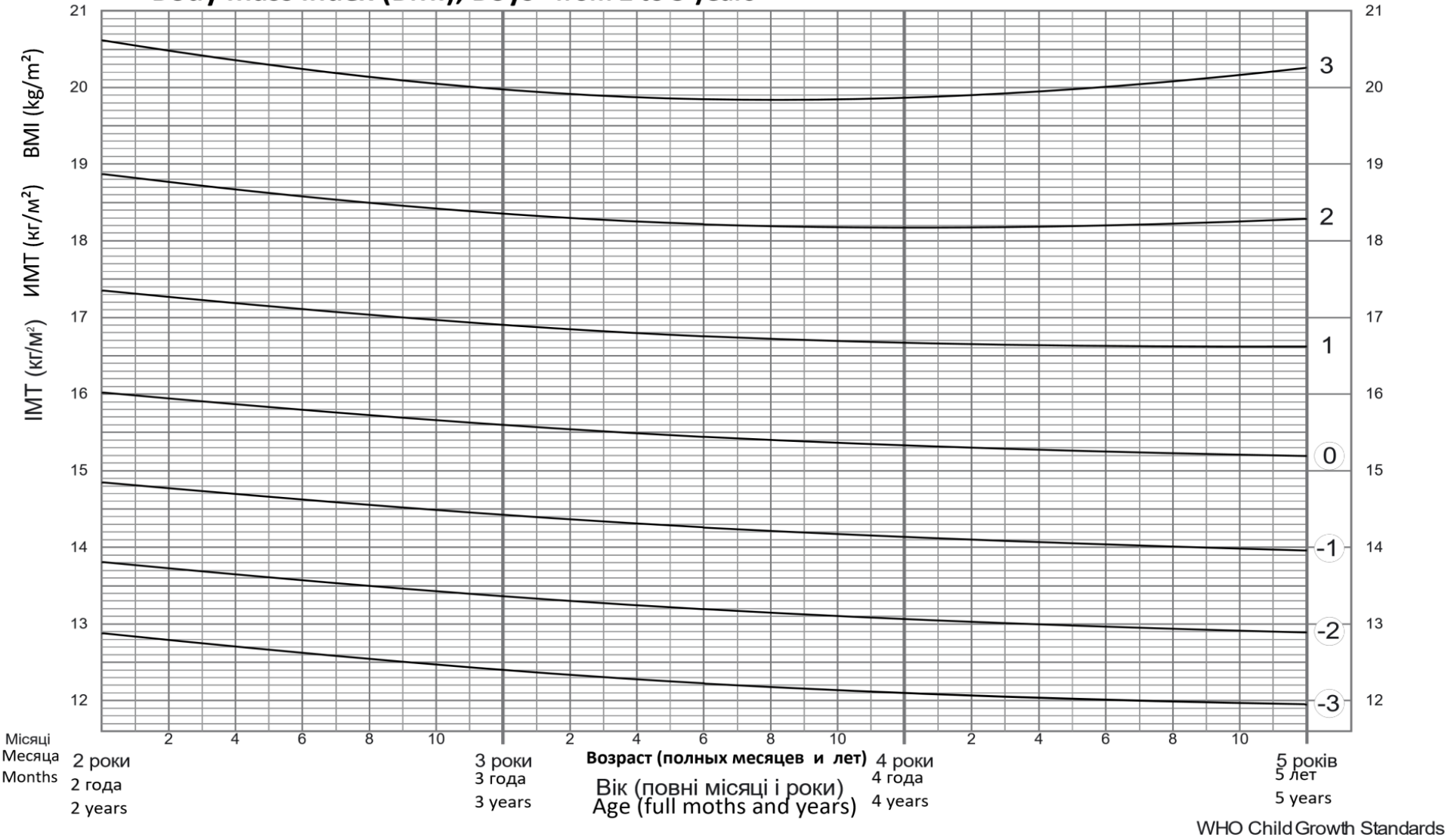
Індекс маси тіла (ІМТ), хлопчики

від 2 до 5 років (z-scores)

Индекс Массы Тела (ИМТ), Мальчики. От 2 до 5 лет.

World Health Organization

Body mass index (BMI), Boys from 2 to 5 years



WHO Child Growth Standards

Task 7. Arterial hypertension

1. **Authors: Kaplina L. E., Kotova N.V.**
   Translated into English by Voloshchuk T.V.
2. **Professional standard**
   Essential and secondary arterial hypertension
3. **Competencies to be checked**
   - Assessment of the child's arterial pressure by centile nomograms.
   - Estimation of child physical development by centile nomograms.
   - Confirmation of the clinical diagnosis.

Scenario 7. A 14 years old girl came to the family doctor with complaints about headaches in the occipital region, a decline in school performance. The mother of the child has arterial hypertension.

Examination: body weight is 58 kg, height is 160 cm. Respiratory rate is 17 per 1 min., vesicular breathing presents. Heart rate is 84 per 1 min, heart tones are pure. Blood pressure is 135/85 mm Hg. The abdomen is soft, the liver and spleen are not palpable. Urination is free, 4-5 times per day. Stool 1 time per day.

Task: assess the child's blood pressure by nomograms. Make a preliminary diagnosis.

Briefing 7: You are a general practitioner. You examine a 14 years old girl with complaints about headaches in the occipital area, a decline in school performance. The mother of the child has arterial hypertension.

Examination: body weight is 58 kg, height is 160 cm. Respiratory rate is 17 per 1 min., vesicular breathing. Heart rate is 84 per 1 min, heart tones are pure. Blood pressure is **135/85** mm Hg. The abdomen is soft, the liver and spleen are not palpable. Urination is free, 4-5 times per day. Stool 1 time per day.

Task: assess the child's blood pressure by nomograms. Make a preliminary diagnosis.

The student must pronounce every action.

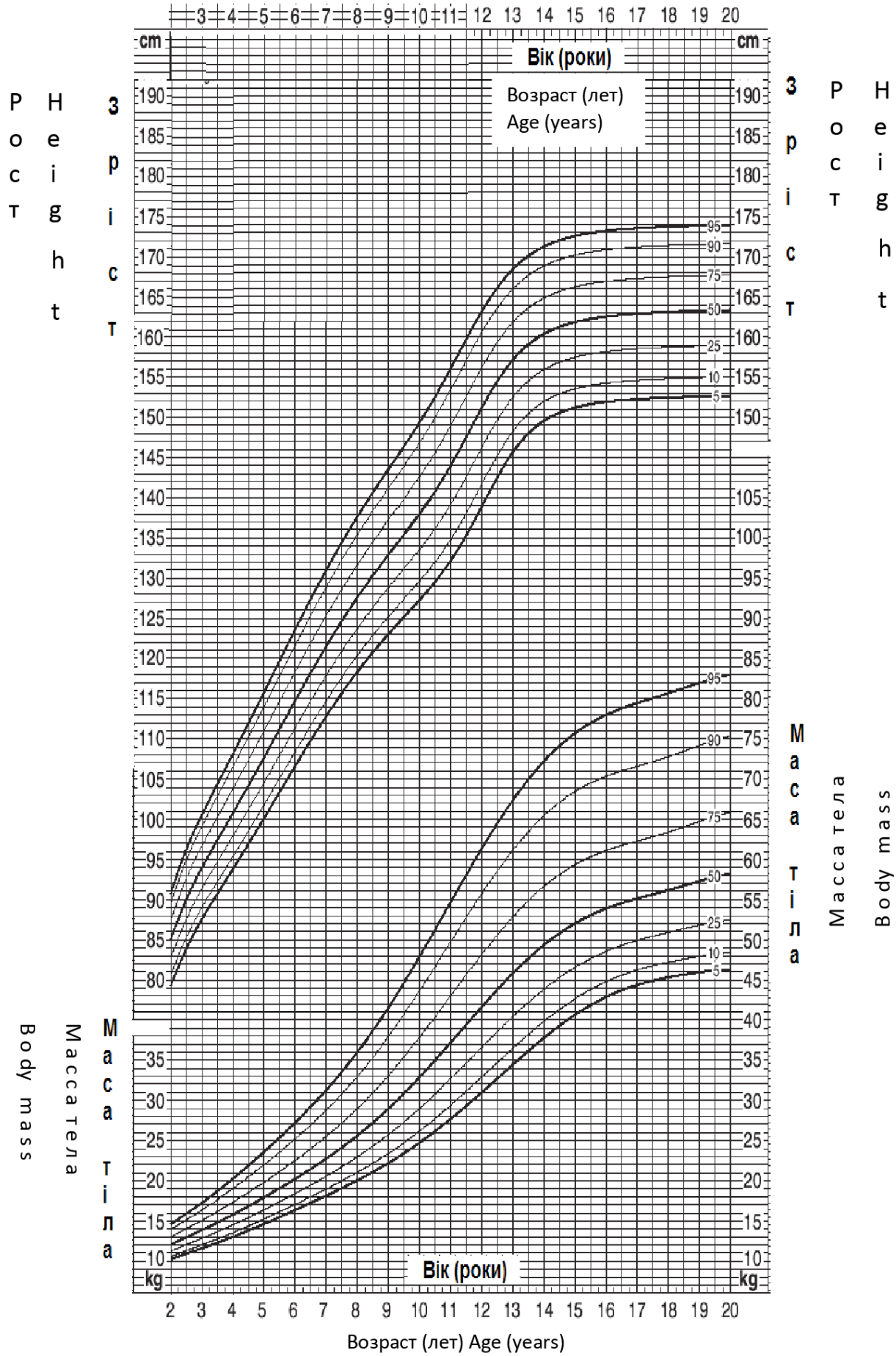
Assessment of the child's blood pressure. Answer key.

The student who takes the exam carries out an assessment of the child's blood pressure according to the nomograms, assesses its level and establishes the diagnosis based on the clinical data					
1.	Choose a nomogram to estimate the height of the child based on age and gender				
2.	Assess growth of the child with nomogram				
3.	Underline the result of evaluation of growth to age	5th centile	10^{th} centile	25^{th} centile	50^{th} centile
		75^{th} centile	90^{th} centile	95^{th} centile	
4.	Choose nomohram to assess the child's blood pressure based on age, gender				
5.	Assess the child's arterial pressure using nomograms				
6.	Underline the result of evaluation of systolic blood pressure, depending on growth	50^{th} centile		90^{th} centile	
		95^{th} centile		95^{th} centile +12 mm Hg	
7.	Underline the result of evaluation of dyastolic blood pressure, depending on growth	50^{th} centile		90^{th} centile	
		95^{th} centile		95^{th} centile +12 mm Hg	
8.	Record an assessment of blood pressure	Normal BP		Increased BP	
		I degree of arterial hypertension		II degree of arterial hypertension	
9.	**Make a diagnosis based on clinical data.**				
10	Follow-up	Leave under the supervision of a family doctor		To direct to the hospital for examination	

Центильні номограми зросту та маси тіла до віку, дівчатка

Центильнные номограммы роста и массы тела к возрасту, девочки

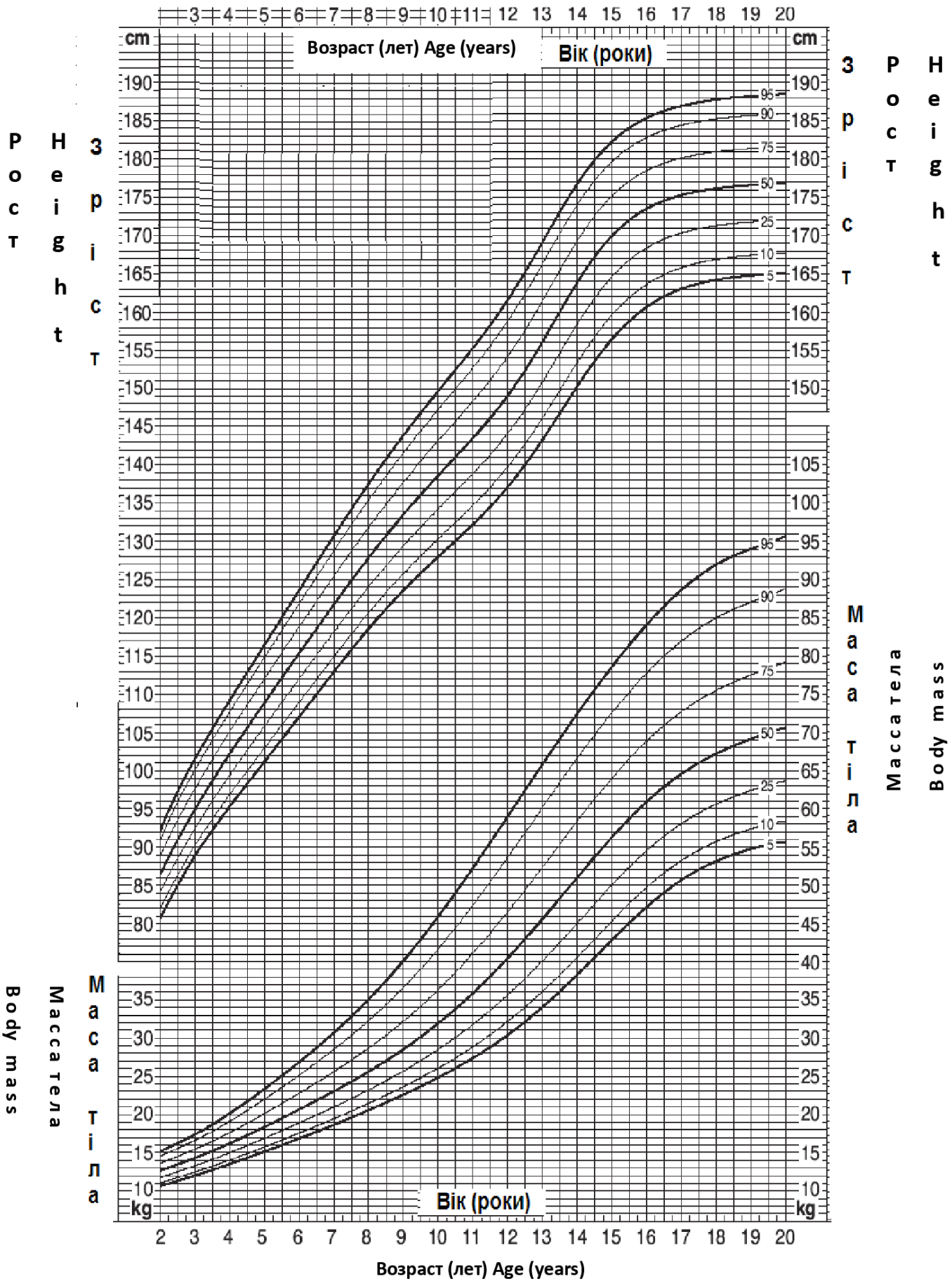
Percentile nomograms of growth and body weight for age, girls



Центильні номограми зросту та маси тіла до віку, хлопчики

Центильнные номограммы роста и массы тела к возрасту, мальчики

Percentile nomograms of growth and body weight for age, boys



Appendix 1: Blood pressure centiles by gender, age and height centile (5)

Age	BP centile	Boys - Height Centile													
		SBP							DBP						
		5%	10%	25%	50%	75%	90%	95%	5%	10%	25%	50%	75%	90%	95%
1	50th	85	85	86	86	87	88	88	40	40	40	41	41	42	42
	90th	98	99	99	100	100	101	101	52	52	53	53	54	54	54
	95th	102	102	103	103	104	105	105	54	54	55	55	56	57	57
	95th +12	114	114	115	115	116	117	117	66	66	67	67	68	69	69
2	50th	87	87	88	89	89	90	91	43	43	44	44	45	46	46
	90th	100	100	101	102	103	103	104	55	55	56	56	57	58	58
	95th	104	105	105	106	107	107	108	57	58	58	59	60	61	61
	95th+12	116	117	117	118	119	119	120	69	70	70	71	72	73	73
3	50th	88	89	89	90	91	92	92	45	46	46	47	48	49	49
	90th	101	102	102	103	104	105	105	58	58	59	59	60	61	61
	95th	106	106	107	107	108	109	109	60	61	61	62	63	64	64
	95th +12	118	118	119	119	120	121	121	72	73	73	74	75	76	76
4	50th	90	90	91	92	93	94	94	48	49	49	50	51	52	52
	90th	102	103	104	105	105	106	107	60	61	62	62	63	64	64
	95th	107	107	108	108	109	110	110	63	64	65	66	67	67	68
	95th +12	119	119	120	120	121	122	122	75	76	77	78	79	79	80
5	50th	91	92	93	94	95	96	96	51	51	52	53	54	55	55
	90th	103	104	105	106	107	108	108	63	64	65	65	66	67	67
	95th	107	108	109	109	110	111	112	66	67	68	69	70	70	71
	95th +12	119	120	121	121	122	123	124	78	79	80	81	82	82	83
6	50th	93	93	94	95	96	97	98	54	54	55	56	57	57	58
	90th	105	105	106	107	109	110	110	66	66	67	68	68	69	69
	95th	108	109	110	111	112	113	114	69	70	70	71	72	72	73
	95th +12	120	121	122	123	124	125	126	81	82	82	838	84	84	85
7	50th	94	94	95	97	98	98	99	56	56	57	58	58	59	59
	90th	106	107	108	109	110	111	111	68	68	69	70	70	71	71
	95th	110	110	111	112	114	115	116	71	71	727	73	73	74	74
	95th +12	122	122	123	124	126	127	128	83	83	84	85	85	86	86
8	50th	95	96	97	98	99	99	100	57	57	58	59	59	60	60
	90th	107	108	109	110	111	112	112	69	70	70	71	72	72	73
	95th	111	112	112	114	115	116	117	72	73	73	74	75	75	75
	95th +12	123	124	124	126	127	128	129	84	85	85	86	87	87	87
9	50th	96	97	98	99	100	101	101	57	58	59	60	61	62	62
	90th	107	108	109	110	111	112	113	70	71	72	73	74	74	74
	95th	112	112	113	115	116	118	119	74	74	75	76	76	77	77
	95th +12	124	124	125	127	128	130	131	86	86	87	88	88	89	89
10	50th	97	98	99	100	101	102	103	59	60	61	62	63	63	64
	90th	108	109	11	112	113	115	116	72	73	74	74	75	75	76
	95th	112	113	114	116	118	120	121	76	76	77	77	78	78	78
	95th +12	124	125	126	128	130	132	133	88	88	89	89	90	90	90
11	50th	99	99	101	102	103	104	106	61	61	62	63	63	63	63
	90th	110	111	112	114	116	117	118	74	74	75	75	75	76	76
	95th	114	114	116	118	120	123	124	77	78	78	78	78	78	78
	95th +12	126	126	128	130	132	135	136	89	90	90	90	90	90	90
12	50th	101	101	102	104	106	108	109	61	62	63	63	63	63	63
	90th	113	114	115	117	119	121	122	75	75	75	75	75	76	76
	95th	116	117	118	121	124	126	128	78	78	78	78	78	79	79
	95th +12	128	129	130	133	136	138	140	90	90	90	90	90	91	91
13	50th	103	104	105	108	110	111	112	61	60	61	62	63	64	65
	90th	115	116	118	12	124	126	126	74	74	74	75	76	77	77
	95th	119	120	122	125	128	130	131	78	78	78	78	80	81	81
	95th +12	131	132	134	137	140	142	143	90	90	90	90	92	93	93
14	50th	105	106	109	111	112	133	133	60	60	62	64	65	66	67
	90th	119	120	123	126	127	128	129	74	74	75	77	78	79	80
	95th	123	125	127	130	132	133	134	77	78	79	81	82	83	84
	95th +12	135	137	139	142	144	145	146	89	90	91	93	94	95	96
15	50th	108	110	112	113	114	114	114	61	62	64	65	66	67	68
	90th	123	124	126	128	129	130	130	75	76	78	79	80	81	81
	95th	127	129	131	132	134	135	135	78	79	81	83	84	85	85
	95th +12	139	141	143	144	146	147	147	90	91	93	95	96	97	97
16	50th	111	112	114	115	115	116	116	63	64	66	67	68	69	69
	90th	126	127	128	129	131	131	132	77	78	79	80	81	82	82
	95th	130	131	133	134	135	136	137	80	81	83	84	85	86	86
	95th +12	142	143	145	146	147	148	149	92	93	95	96	97	98	98
17	50th	114	115	116	117	117	118	118	65	66	67	68	69	70	70
	90th	128	129	130	131	132	133	134	78	79	80	81	82	82	83
	95th	132	133	134	135	137	138	138	81	82	84	85	86	86	87
	95th +12	144	145	146	147	149	150	150	93	94	96	97	98	98	99

Age	BP centile	Girls - Height Centile													
		SBP							DBP						
		5%	10%	25%	50%	75%	90%	95%	5%	10%	25%	50%	75%	90%	95%
1	50th	84	85	86	86	87	88	88	41	42	42	43	44	45	46
	90th	98	99	99	100	101	102	102	54	55	55	56	57	58	58
	95th	101	102	102	103	104	105	105	59	59	60	60	61	62	62
	95th +12	113	114	114	115	116	117	117	71	71	72	72	73	74	74
2	50th	87	87	88	89	90	91	91	45	46	47	48	49	50	51
	90th	101	101	102	103	104	105	106	58	58	59	60	61	62	62
	95th	104	105	106	106	107	108	109	62	63	63	64	65	66	66
	95th +12	116	117	118	118	119	120	121	74	75	75	76	77	78	78
3	50th	88	89	89	90	91	92	93	48	48	49	50	51	53	53
	90th	102	103	104	104	105	106	107	60	61	61	62	63	64	65
	95th	106	106	107	108	109	110	110	64	65	65	66	67	68	69
	95th +12	118	118	119	120	121	122	122	76	77	77	78	79	80	81
4	50th	89	90	91	92	93	94	94	50	51	51	53	54	55	55
	90th	103	104	105	106	107	108	108	62	63	64	65	66	67	67
	95th	107	108	109	109	110	111	112	66	67	68	69	70	70	71
	95th +12	119	120	121	121	122	123	124	78	79	80	81	82	82	83
5	50th	90	91	92	93	94	95	96	52	52	53	55	56	57	57
	90th	104	105	106	107	108	109	110	64	65	66	67	68	69	70
	95th	108	109	109	110	111	112	113	68	69	70	71	72	73	73
	95th +12	120	121	121	122	123	124	125	80	81	82	83	84	85	85
6	50th	92	92	93	94	96	97	97	54	54	55	56	57	58	59
	90th	105	106	107	108	109	110	111	67	67	68	69	70	71	71
	95th	109	109	110	111	112	113	114	70	71	72	72	73	74	74
	95th +12	121	121	122	123	124	125	126	82	83	84	84	85	86	86
7	50th	92	93	94	95	97	98	99	55	55	56	57	58	59	60
	90th	106	106	107	109	110	111	112	68	68	69	70	71	72	72
	95th	109	110	111	112	113	114	115	72	72	73	73	74	74	75
	95th +12	121	122	123	124	125	126	127	84	84	85	85	86	86	87
8	50th	93	94	95	97	98	99	100	56	56	57	59	60	61	61
	90th	107	107	108	110	111	112	113	69	70	71	72	72	73	73
	95th	110	111	112	113	115	116	117	72	73	74	74	75	75	75
	95th +12	122	123	124	125	127	128	129	84	85	86	86	87	87	87
9	50th	95	95	97	98	99	100	101	57	58	59	60	60	61	61
	90th	108	108	109	111	112	113	114	71	71	72	73	73	73	73
	95th	112	112	113	114	116	117	117	74	74	75	75	75	75	75
	95th +12	124	124	125	126	128	129	130	86	86	87	87	87	87	87
10	50th	96	97	98	99	101	102	103	58	59	59	60	61	61	62
	90th	109	110	111	112	113	115	116	72	73	73	73	73	73	73
	95th	113	114	114	116	117	119	120	75	75	76	76	76	76	76
	95th +12	125	126	126	128	129	131	132	87	87	88	88	88	88	88
11	50th	98	99	101	102	104	105	106	60	60	60	61	62	63	64
	90th	111	112	113	114	116	118	120	74	74	74	74	74	75	75
	95th	115	116	117	118	120	123	124	76	77	77	77	77	77	77
	95th +12	127	128	129	130	132	135	136	88	89	89	89	89	89	89
12	50th	102	102	104	105	107	108	108	61	61	61	62	64	65	65
	90th	114	115	116	118	120	122	122	75	75	75	75	76	76	76
	95th	118	119	120	122	124	125	126	78	78	78	78	79	79	79
	95th +12	130	131	132	134	136	137	138	90	90	90	90	91	91	91
13	50th	104	105	106	107	108	108	109	62	62	63	64	65	65	66
	90th	116	117	119	121	122	123	123	75	75	75	76	76	76	76
	95th	121	122	123	124	126	126	127	79	79	79	79	80	80	81
	95th +12	133	134	135	136	138	138	139	91	91	91	91	92	92	93
14	50th	105	106	107	108	109	109	109	63	63	64	65	66	66	66
	90th	118	118	120	122	123	123	123	76	76	76	76	77	77	77
	95th	123	123	124	125	126	127	127	80	80	80	80	81	81	82
	95th +12	135	135	136	137	138	139	139	92	92	92	92	93	93	94
15	50th	105	106	107	108	109	109	109	64	64	64	65	66	67	67
	90th	118	119	121	122	123	123	124	76	76	76	77	77	78	78
	95th	124	124	125	126	127	127	128	80	80	80	81	82	82	82
	95th +12	136	136	137	138	139	139	140	92	92	92	93	94	94	94
16	50th	106	107	108	109	109	110	110	64	64	65	66	66	67	67
	90th	119	120	122	123	124	124	124	76	76	76	77	78	78	78
	95th	124	125	125	127	127	128	128	80	80	80	81	82	82	82
	95th +12	136	137	137	139	139	140	140	92	92	92	93	94	94	94
17	50th	107	108	109	110	110	110	111	64	64	65	66	66	66	67
	90th	120	121	123	124	124	125	125	76	76	77	77	78	78	78
	95th	125	125	126	127	128	128	128	80	80	80	81	82	82	82
	95th +12	137	137	138	139	140	140	140	92	92	92	93	94	94	94

Tables reproduced from: *Flynn JT, Kaelber DC, Baker-Smith CM, et al. Clinical Practice Guideline for Screening and Management of High Blood Pressure in Children and Adolescents. Pediatrics. 2017; 140 (3): e20171904*

Appendix 3: Ambulatory blood pressure monitoring: 90th and 95th percentiles of mean day and night systolic and diastolic BP, stratified according to gender and height

	Systolic BP				Diastolic BP			
	Day		Night		Day		Night	
BOYS Height (cm)	90th pct	95th pct	90th pct	95th pct	90th pct	95th pct	90th pct	95th pct
120	120.6	123.5	103.7	106.4	79.1	81.2	61.9	64.1
125	121.0	124.0	104.9	107.8	79.3	81.3	62.2	64.3
130	121.6	124.6	106.3	109.5	79.3	81.4	62.4	64.5
135	122.2	125.2	107.7	111.3	79.3	81.3	62.7	64.8
140	123.0	126.0	109.3	113.1	79.2	81.2	62.9	65.0
145	124.0	127.0	110.7	114.7	79.1	81.1	63.1	65.2
150	125.4	128.5	111.9	115.9	79.1	81.0	63.3	65.4
155	127.2	130.2	113.1	117.0	79.2	81.1	63.4	65.6
160	129.2	132.3	114.3	118.0	79.3	81.3	63.6	65.7
165	131.3	134.5	115.5	119.1	79.7	81.7	63.7	65.8
170	133.5	136.7	116.8	120.2	80.1	82.2	63.8	65.9
175	135.6	138.8	118.1	121.2	80.6	82.8	63.8	65.9
180	137.7	140.9	119.2	122.1	81.1	83.4	63.8	65.8
185	139.8	143.0	120.3	123.0	81.7	84.1	63.8	65.8

	Systolic BP				Diastolic BP			
	Day		Night		Day		Night	
GIRLS Height (cm)	90th pct	95th pct	90th pct	95th pct	90th pct	95th pct	90th pct	95th pct
120	118.5	121.1	105.7	109.0	79.7	81.8	64.0	66.4
125	119.5	122.1	106.4	109.8	79.7	81.8	63.8	66.2
130	120.4	123.1	107.2	110.6	79.7	81.8	63.6	66.0
135	121.4	124.1	107.9	111.3	79.7	81.8	63.4	65.8
140	122.3	125.1	108.4	111.9	79.8	81.8	63.2	65.7
145	123.4	126.3	109.1	112.5	79.8	81.8	63.0	65.6
150	124.6	127.5	109.9	113.1	79.9	81.9	63.0	65.5
155	125.7	128.5	110.6	113.8	79.9	81.9	62.9	65.5
160	126.6	129.3	111.1	114.0	79.9	81.9	92.8	65.4
165	127.2	129.8	111.2	114.0	79.9	81.9	62.7	65.2
170	127.5	130.0	111.2	114.0	79.9	81.8	62.5	65.0
175	127.6	129.9	111.2	114.0	79.8	81.7	62.3	64.7

Equipment:

1. Task
2. Centile nomograms
3. Ruler
4. Pencil

Guidelines:

1. Педіатрія у двох томах, за редакцією Аряєва М.Л., Котової Н.В. Т2, Захворювання дітей раннього віку. Пульмонологія. Алергологія. Кардіологія. Гастроентерологія. Нефрологія. ВІЛ-інфекція. Первинна медико-санітарна допомога підручник – Одеса.: ОНМедУ. – 2014. – 312 с.
2. КЛІНІЧНІ РЕКОМЕНДАЦІЇ ДЛЯ СКРИНІНГУ ТА ЛІКУВАННЯ ВИСОКОГО АРТЕРІАЛЬНОГО ТИСКУ У ДІТЕЙ ТА ПІДЛІТКІВ*Американська Академія Педіатрії, 2017*
3. ***Hypertension (Andrew Lunn) Page 22 of 22 January 2019; v4. Nottinghem University Hospitals NHS.***
4. Nelson Textbook of Pediatrics, 2 – Volume Set – 21st Edition.

Updated indexes of BP degree	
For children aged 1- <13 years	**For children aged ≥13**
Normal BP: <90th percentile	Normal BP: <120 / <80 mm Hg.
Increased BP: ≥90th percentile up to <95th percentile or 120 / 80mm Hg up to <95th percentile (lower)	Increased BP: 120 / <80 up to 129 / <80 mm Hg.
I degree of hypertension: ≥95th percentile up to <95th percentile + 12mm Hg or 130/80 up to 139/89 mm Hg (depending on what is below)	I degree of hypertension: 130/80 up to 139/89 mm Hg.
II degree of hypertension: ≥95th percentile + 12 mm Hg, or ≥140 / 90 mm Hg (lower)	II Degree of hypertension: ≥140 / 90 mm Hg.

Task 8. Diagnosis and treatment of jaundice

1. **Authors**: Tsyunchyk Y.G.
2. **Professional standard**
   Integrated Management of Childhood Illness
3. **Competency checking**
   - Examine and assess the child for general danger signs.
   - Classify the illness based on a colour-coded triage system.
   - Treat the child and counsel the mother.

1. Scenario 8: You are GP (general practice) doctor. The mother of 10-day-old infant complains with yellowish skin since 6th day of life. The birthweight was 3500 g, the length was 53 cm. The mother`s blood group is A(II) Rh+, the baby`s blood group is B(III) Rh+. The infant is on breastfeeding.

On examination, the child sucks well. There are no vomiting and convulsion. The child is conscious. Temperature is 36,5°C. The skin is pink, the face and eyes are yellow. Respirations are 40/min. The breathing is vesicular. Pulse is 140/min. The heart tones are clear and rhythmic. The liver is +2 cm below costal margin, and elastic. The spleen is not palpable. Stool is normal, regular. Urine is yellow.

Task: Assess the child. Classify the illness. Manage the baby.

2. Briefing 8: You are GP (general practice) doctor. The mother of 10-day-old infant complains with yellowish skin since 6th day of life. The birthweight was 3500 g, the length was 53 cm. The mother`s blood group is A(II) Rh+, the baby`s blood group is B(III) Rh+. The infant is on breastfeeding.

On examination, the child sucks well. There are no vomiting and convulsion. The child is conscious. Temperature is 36,5°C. The skin is pink, the face and eyes are yellow. Respirations are 40/min. The breathing is vesicular. Pulse is 140/min. The heart tones are clear and rhythmic. The liver is +2 cm below costal margin, and elastic. The spleen is not palpable. Stool is normal, regular. Urine is yellow.

Task: Assess the child. Classify the illness. Manage the baby.

3. Case management steps for primary medical care (IMCI)

Check for general danger signs:

1. ***Ask, does jaundice present?***
2. When did the jaundice appear first?
3. Check for jaundice.

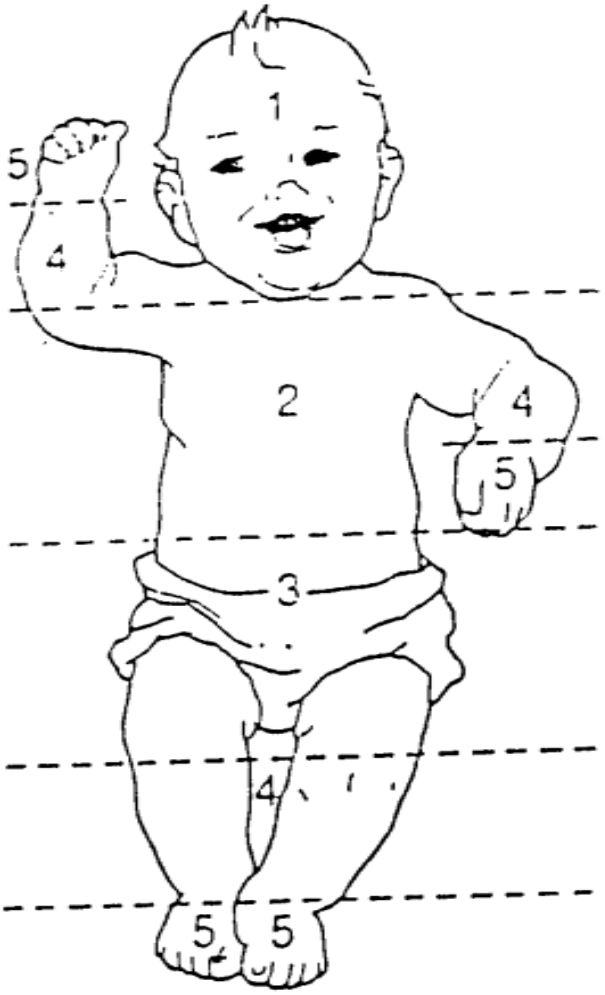
Look and assess:

1. Look for jaundice (yellow eyes or skin).
2. If jaundice present, assess the localization by Kramer scale. Look at the young infant`s palms and soles. Are they yellow?
3. Jaundice appearing after 24 hours of age, and palms and soles are not yellow.

Primary medical care assessment (IMCI):

1. ***The general danger signs are absent.***
2. ***There are yellow face and eyes.***
3. ***The Kramer's dermic area is 1, the total serum bilirubin is*** less than 100 μmol/l.

Kramer's scaale



Dermic area	1	2	3	4	5
Total serum bilirubin (µmol/l)	100	150	200	250	>250

Conclusion: Yellow: **JAUNDICE, Kramer's dermic area is 1, total serum bilirubin is less than 100 µmol/l.**

Primary medical care activity (IMCI):

1. ***Yellow:*** **JAUNDICE**

Advice the mother to give home care for the young infant.

2. Advice mother to return immediately if palms and soles appear yellow.
3. Follow-up in 1 day.
4. If palms and soles are not yellow, but jaundice has not decreased, advice the mother home care and ask her to return for follow-up in 1 day.
5. If jaundice has started decreasing, reassure the mother and ask her to continue home care. Ask her to return for follow-up at 2 weeks of age.
6. If the young infant is older than 7 days, and Kramer's dermic area is 5, refer to a hospital.
7. If the young infant is older than 14 days, and jaundice has not decreased, refer to a hospital for assessment.

Diagnosis and treatment of jaundice», etalon of answers

	Student must write conclusion and case management steps by IMCI					
	Conclusion: Yellow: **JAUNDICE**					
	Conclusion: PINK: **JAUNDICE**					
	The general danger signs and symptoms:					
1.	Poor appetite					
2.	Lethargy					
3.	Vomiting					
4.	Convulsion					
5.	***Kramer's scale***					
6.	***area №1***	***area №2***	***area №3***			
7.	***area №4***	***area №5***				
8.	Total serum bilirubin is less than					
9.	***100*** **µmol/l**	***150*** **µmol/l**	***200*** **µmol/l**			
10.	***25*** **µmol/l**	***More than 250*** **µmol/l**				
11.	Advice the mother to give home care for the young infant					
12.	Follow-up					
13.	In 1 day	In 2 days				
14.	If palms and soles are not yellow, but jaundice has not decreased, advice the mother home care and ask her to return for follow-up					
15.	In 1 day	In 2 days				
16.	If the young infant is older than 7 days, and Kramer's dermic area is 5,					
17.	Give home care	Refer to a hospital				
18.	If the young infant is older than 14 days, and jaundice has not decreased,					
19.	Give home care	Refer to a hospital for assessment				

5. Equipment:

1. Case and list of medicines
2. Pen

6. Sources, documents:

1. Уніфікований клінічний протокол первинної медичної допомоги Інтегроване ведення хвороб дитячого віку (наказ МОЗ України №438 12.05.2016).
2. Додаток до уніфікованого клінічного протоколу первинної медичної допомоги «Інтегроване ведення хвороб дитячого віку» (наказ МОЗ України №438 12.05.2016).
3. Педіатрія у двох томах, за редакцією Аряєва М.Л., Котової Н.В. Т2, Захворювання дітей раннього віку. Пульмонологія. Алергологія. Кардіологія. Гастроентерологія. Нефрологія. ВІЛ-інфекція. Первинна медико-санітарна допомога підручник – Одеса.: ОНМедУ. – 2014. – 312 с.
4. WHO Library Cataloguing-in-Publication Data: Integrated Management of Childhood Illness: distance learning course. - March 2014.

Task 9. Diagnosis and treatment of diseases that are accompanied by coughing or difficult breathing

1. **Author:** D.S.Selimkhanova, assistant of pediatrics department №1
2. **Professional standard**

Integrated management of common childhood illnesses

4. **Competencies to be checked**

- Detection and evaluation of general signs of danger.
- Conclusion on the basis the algorithm of traffic light.
- Determination of necessary actions.

1. **Scenario 9:** You are a general practitioner. A mother with a boy of 6 months (body weight 7.5 kg) complains to you about fever, loss of appetite and cough in a child. The child is 5 days ill. The child is breastfed and receives 1 supplement. He refuses to eat. Any convulsions are present and was not. Consciousness is not disturbed.

At inspection: restless, coughing, wet cough is unproductive, eyes are not sunken, pink skin, no rash, the body and limbs are hot to the touch, the skin folds get smoothed out immediately. There is a retraction of the lower edge of the chest in rest. Above the lungs breathing is weakened, crepitation on both sides., There is no asthmatic breathing nor stridor. Frequency of breathing is 60 in 1 minute. Body temperature is 38,5 ° C.

Task: Write a preliminary diagnosis and choose the necessary treatment.

2**. Briefing N 9:** You are a general practitioner. A mother with a boy of 6 months (body weight 7.5 kg) complains to you about fever , loss of appetite and cough in child. The child is ill for 5 days. The child is breastfed and receives 1 supplements. He refuses to eat. Any convulsions are present and was not. Consciousness is not disturbed.

At inspection: restless, coughing, wet cough is unproductive, eyes are not sunk, skin is pink, no rash, the body and limbs are hot to the touch, the skin folds get smoothed out immediately. There is a retraction the lower edge of the chest in rest. Above the lungs breathing is weakened, crepitation on both sides., There is no asthmatic breathing nor stridor. Frequency of breathing is 60 in 1 minute. Body temperature is 38,5 ° C.

Task: Write a preliminary diagnosis and choose the necessary treatment.

The student must pronounce every action.

3**. Algorithm of Integrated Management of Childhood Illness (IMCI)**

CHECK FOR GENERAL DANGER SIGNS:

1.Ask: is the child able to drink or be breastfed?
2.Does the child vomit everything?
3.Has the child had convulsions?
4.See if the child is lethargic or unconscious
5.Is the child convulsing now?

Next:

1.Does the child have cough or difficult breathing?
2.If yes, ask for how long?
3.Ask if there have fever?

4. If yes, then ask: how long?
5.See if there is a petechial rash.
6.Calculate and measure the frequency of breaths per minute.
7.See if there is a retraction the lower edge of the chest.
8. Look and listen to the Stridor.
9. Look and listen if there is asthmatic breathing
10.Look at the rigidity of the occipital muscles.
11.See if there are other obvious causes of the fever
12.See if the baby has a runny nose

Accelerated breathing is, if :

From 2 to 12 months - 50 or more breaths per minute
From 12 months to 5 years - 40 and more breaths per minute

Conclusion

Danger level - Pink:

DANGER PNEUMONY OR VERY SERIOUS DISEASES

General signs of danger and action:

1. Refuse of food
2. Breast retraction in rest.
3. Fever
4. Give the first dose of ampicillin + gentamicin intramuscularly
5. At the stridor, enter dexamethasone intramuscularly
6. Urgently send to the hospital

The student who passes the exam writes the conclusion and actions according to the algorithm of the IMCI	
1	Conclusion: DIAGNOSE PNEUMONIA OR VERY SERIOUS DISEASES
2	Conclusion: PROBABLY PNEUMONIA
3	**Detected signs of danger and other symptoms:**
4	Refuse of food
5	lethargic
6	vomiting
7	Convulsions
8	Breast retraction in rest.
9	Rapid breathing
10	asthmatic breathing
11	Stridor
12	**Recommendations and actions:**
13.	Continue breast-feeding on demand
11.	Give extra fluid 500–600 ml
14	Conduct the first dose of ampicillin 50 mg / kg intramuscularly
15	Conduct the first dose of gentamicin 7.5 mg / kg intramuscularly
14.	Urgently direct the child to the hospital
15.	Treat at home

5.Equipment:

1. A sheet with a task and a list of drugs
2 Pen

6. Guidelines:

1. Unified clinical protocol for primary care Integrated management of childhood illnesses (Order of the Ministry of Health of Ukraine No.438 dated May 12, 2016).

2. Annex to the unified clinical protocol for primary care "Integrated management of childhood diseases" (Order of the Ministry of Health of Ukraine No.438 dated May 12, 2016).

3. “Pediatrics” in two volumes, edited by Aryaev ML, Kotova N.V. T2, Diseases of young children. Pulmonology. Allergology. Cardiology. Gastroenterology. Nephrology HIV infection. Primary medical and nursing help textbook - Odessa: ONMedU. - 2014 - 312 p

Task 10. Diagnosis and treatment of common diseases in children (pediatrics, neonatology, children's infectious diseases). Diagnosis and treatment of local bacterial infection

1.
2. **Author: Kaplina L. E.**
   Translated into English by Voloshchuk T.V.
3. **Professional standard**
   Integrated management of childhood illnesses
4. **Competencies to be checked**
   - Detection and assesment of general signs of danger.
   - Conclusion by the algorithm of the traffic light.
   - Determination of necessary actions.

1. Scenario 10: You are a general practitioner. The mother of 7 days old child complains about the redness of the baby's umbilical wound that she noticed this morning. Birth weight is 3600g, body length is 54 cm. The baby is breastfed.

Examination: the child actively sucks the breast. There is no convulsions. Consciousness is not disturbed. Temperature is 36.5 °C. Skin is pink and clean. Umbilical wound is hyperemic, there is no pus discharge from the wound. Respiratory rate is 40 per 1 minute, vesicular. The heart rate is 140 per 1 minute, the tones are clear, rhythmic. The liver protrudes from the edge of the rib arch up to 2 cm, elastic. The spleen is not palpable. Stool is yellow, after each feeding. Urine is light.

Task: evaluate the child's condition, choose further management.

2. Briefing 10: You are a general practitioner. The mother of 7 days old child complains about the redness of the baby's umbilical wound that she noticed this morning. Birth weight is 3600g, body length is 54 cm. The baby is breastfed.

Examination: the child actively sucks the breast. There is no convulsions. Consciousness is not disturbed. Temperature is 36.5 °C. Skin is pink and clean. Umbilical wound is hyperemic, there is no discharge of pus from the wound. Respiratory rate is 40 per 1 minute, vesicular. The heart rate is 140 per 1 minute, the tones are clear, rhythmic. The liver protrudes from the edge of the rib arch up to 2 cm, elastic. The spleen is not palpable. Stool is yellow, after each feeding. Urine is light.

Task: evaluate the child's condition, choose further management.

The student must pronounce every action.

3. Algorithm of actions of general practitioner (Integrated management of childhood illness)

Check for signs of danger and other symptoms:

- Redness of the umbilical wound.
- Purulent discharge from umbilical wound.
- Pustules on the skin.

4. Conclusion: Yellow*:* LOCAL BACTERIAL INFECTION

Yellow*:* LOCAL BACTERIAL INFECTION

	The student who takes the exam writes the conclusion and actions according to the algorithm of the IMCI					
	Conclusion: Yellow*:* LOCAL BACTERIAL INFECTION					
	Conclusion: Pink*:* GENERALIZED BACTERIAL INFECTION					
	Detected signs of danger and other symptoms:					
1.	Refuse to eat					
2.	Lethargy					
3.	Vomiting					
4.	Convulsions					
5.	***Skin and umbilical wound assessment***					
	Redness of umbilical wound	***Purulent discharge from the umbilical wound***	***Pustules on the skin***			
6.	**Prescribe Amoxicillin Oral Suspension 125 mg / 5 ml 2 times per day for 5 days.**					
	2,5 ml	***5 ml***				
7.	**Prescribe Ceftriaxone intramuscularly 2 times per day for 5 days**					
	50 mg/kg	***100 mg/kg***				
8.	**Teach mother how to treat a local infection at home**					
9.	Wash your hands	Carefully wash the umbilical wound with boiled water	Dry the umbilical wound			
10.	Lay down Methylenum coeruleum solution in ethanol	Wash your hands				
11.	**Observe how mother treat the baby for the first time**					
12.	**Inform the mother about conditions that require immediate re-treatment**					
13.	**Re-examination**					
	In 1 day	In 2 days				
14.	**If there is any improvement, recommend the mother:**					
	Continue prescribed treatment for 5 days	Continue prescribed treatment for 10 days				
15.	**If the redness of the umbilical wound persists or purulent discharge appears, or the condition worsens:**					
	Change the antibiotic therapy	Admit baby to the hospital				

5. Equipment:

1. Sheet with a task and a list of drugs
2. Pen

6. Guidelines:

1. Уніфікований клінічний протокол первинної медичної допомоги Інтегроване ведення хвороб дитячого віку (наказ МОЗ України №438 12.05.2016).
2. Додаток до уніфікованого клінічного протоколу первинної медичної допомоги «Інтегроване ведення хвороб дитячого віку» (наказ МОЗ України №438 12.05.2016).

3. Педіатрія у двох томах, за редакцією Аряєва М.Л., Котової Н.В. Т2, Захворювання дітей раннього віку. Пульмонологія. Алергологія. Кардіологія. Гастроентерологія. Нефрологія. ВІЛ-інфекція. Первинна медико-санітарна допомога підручник – Одеса.: ОНМедУ. – 2014. – 312 с.
4. Nelson Textbook of Pediatrics, 2 – Volume Set – 21st Edition.

Task 11. Diagnosis and treatment of common diseases in children (pediatrics, neonatology, children's infectious diseases). Consultation of mother on breastfeeding

1. **Authors: Kaplina L. E.**
   Translated into English by Voloshchuk T.V.
2. **Professional standard**
   Integrated management of childhood illnesses
3. **Competencies to be checked**
   - Support for successful breastfeeding.
   - Maternal consultation on breastfeeding.
   - Determination of necessary actions.

1. Scenario 11: You are a general practitioner. The mother of 5 days old child complains about child's anxiety during breastfeeding, a short term feeding period of the child. Birth weight is 3500g, body length is 53 cm.

Examination: the baby sucks the breast. Mother holds the baby over the neck and shoulders. Most of the areola around the nipple is visible. There is no vomiting and convulsions. Consciousness is not disturbed. Temperature is 36.5 °C. Skin is pink and clean. Respiratory rate is 40 per 1 minute, vesicular. The heart rate is 140 per 1 minute, the tones are clear, rhythmic. Abdomen is soft, painless with palpation. The liver protrudes from the edge of the rib arch up to 2 cm, elastic. The spleen is not palpable. Stool is yellow, after each feeding. Urine is light.

Task: Evaluate the nutritional status. Check the baby's position during breastfeeding. Give advice.

2. Briefing 11: You are a general practitioner. The mother of 5 days old child complains about child's anxiety during breastfeeding, a short term feeding period of the child. Birth weight is 3500g, body length is 53 cm.

Examination: the baby sucks the breast. Mother holds the baby over the neck and shoulders. Most of the areola around the nipple is visible. There is no vomiting and convulsions. Consciousness is not disturbed. Temperature is 36.5 °C. Skin is pink and clean. Respiratory rate is 40 per 1 minute, vesicular. The heart rate is 140 per 1 minute, the tones are clear, rhythmic. Abdomen is soft, painless with palpation. The liver protrudes from the edge of the rib arch up to 2 cm, elastic. The spleen is not palpable. Stool is yellow, after each feeding. Urine is light.

Task: Evaluate the nutritional status. Check the baby's position during breastfeeding. Give advice.

The student must pronounce every action.

3. Algorithm of actions for general practitioner (Integrated management of childhood illness)

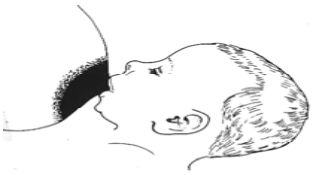
Check:

1. Check the baby's position during breastfeeding.
2. Make a conclusion about the position of the baby during breastfeeding.
3. Give an advice.

Assessment of the primary care physician (Integrated management of childhood illness):

1. ***Feeding Problems.***
2. ***Incorrect position during breastfeeding.***
3. ***Advices regarding the baby position during the breastfeeding.***

Feeding Problems

	The student who takes the exam writes the conclusion and actions according to the algorithm of the IMCI				
	Conclusion: feeding problems.				
	Conclusion: normal feeding				
	Teach mother how properly hold the baby during breastfeeding				
1	Position of the baby during breastfeeding				
2	Body and head of the baby should be placed:				
	on the same line	at angle of			
	When the baby stretches to the nipple, his nose must be:				
3	opposite the nipple	above the nipple			
	Mother holds:				
4	only neck and shoulders	all body of the baby			
	Touch with nipple:				
5	cheek of the baby	lips of the baby			
	Wait until the baby broadly opens the mouth, quickly put the baby to the breast				
6	lower lip of the baby should be under the nipple	lower lip of the baby should be near the nipple			
	Choose the picture where the child correctly placed during breastfeeding				
					
7	Picture A	Picture B			
	 1	 2			
8	Picture A	Picture B			
	Teach mother how care about the baby at home				
9	Feed the baby exclusively with breast milk	Feed the baby with breast milk. If there is a need, give water.	***If the baby is restless give him milk mixture***		
10	Feed the baby so often and so long as baby want	Feed the baby every 3,5 hours	Feed the baby every 3 hours		
11	***Advise mother how to care about the baby at home***				
	Re-examination				
12	in 1 day	in 2 days			
	Total score				

5. Equipment:

1. List with a task and a list of drugs
2. Pen

6. Guidelines:

1. Уніфікований клінічний протокол первинної медичної допомоги Інтегроване ведення хвороб дитячого віку (наказ МОЗ України №438 12.05.2016).
2. Додаток до уніфікованого клінічного протоколу первинної медичної допомоги «Інтегроване ведення хвороб дитячого віку» (наказ МОЗ України №438 12.05.2016).
3. Педіатрія у двох томах, за редакцією Аряєва М.Л., Котової Н.В. Т2, Захворювання дітей раннього віку. Пульмонологія. Алергологія. Кардіологія. Гастроентерологія. Нефрологія. ВІЛ-інфекція. Первинна медико-санітарна допомога підручник – Одеса.: ОНМедУ. – 2014. – 312 с.
4. Nelson Textbook of Pediatrics, 2 – Volume Set – 21st Edition.

Task 12. Diagnosis and treatment of common diseases in children (pediatrics, neonatology, children's infectious diseases). Diagnosis and treatment of secretory diarrhea, moderate dehydration

1. Authors: Yrchenko I.V., docent of the department of children infectious diseases; Movlyanova N.V., docent of the department of children infectious diseases;

2. Professional standard of Grant of medicare to the children with moderate dehydration

3.Competenses

- Grounds of clinical diagnosis are checked up.
- A choice of remedy by check list in obedience to the integrated conduct of illnesses of child's age

1. Scenario 12: You are a general practitioner. A mother with a child, 8 months old (8,5 kg body weight), applied to you, complaining about a child's fever, appetite loss, vomiting 3 times a day, and frequent 6-7 times per day of emptying without blood impurities. The child is ill for 1 day. He is Breastfed. The child can drink and breastfeed. No court was and was not. Consciousness is not broken.

At inspection: restless and irritating, eagerly drinks liquid, eyes are not burnt, pink skin, the body and extremities touch the hot touch, the skin folds immediately. Body temperature 38,6 ° C.

Your task: To write a preliminary diagnosis and to choose the necessary treatment

2. Briefing 12: You are a general practitioner. A mother with a child, 8 months old (8,5 kg body weight), applied to you, complaining about a child's fever, appetite loss, vomiting 3 times a day and frequent 6-7 times per day of emptying without blood impurities.

Task: Write a preliminary diagnosis and choose the necessary treatment

The student must pronounce every action.

3. Algorithm of actions of the primary care physician

1. Is there a child with diarrhea? If so, then ask: How long does it last? Is there an admixture of blood in emptying?

2. Evaluate the general condition of the child. Child: Lethargy or unconscious? Restless and annoying?

3. Evaluate whether there are "burning" eyes.

4. Suggest your child a liquid. Child: Can not drink or "bad"? Drinking is active, greedy?

5. Check the reaction of the skin folds on the abdomen. Evaluate how fast the fold folds: Very slow (longer than 2 seconds)? Slow?

Two of the following indications show a DANGEROUS DEHYDRATION:

1) Lethargy or unconscious
2) The "burning" eyes
3) Can not drink or is bad
4) The skin folds up very slowly

If the child has no other difficult classifications:

1. Give the child a liquid, as with severe dehydration (Plan B).

2. If there are other severe classifications of the child: DELAY the child to the hospital with the mother; during transportation, accordance with the recommendations of Plan B. Advise the mother to continue feeding breast

Two from the following signs testify to MODERATE DEHYDRATION:

1) Restless, annoying

2) The "burning" eyes
3) Active and greedy is not
4) The skin folds up slowly

1. Give the child fluid, food and zinc in accordance with the recommendations of Plan B.

2. If there are other severe classifications of the child: IMPORTANT: direct the child to the in-patient department from the mother; during transportation, give the child an ORS in small portions. Advise the mother to continue feeding breast

Less than two signs of dehydration or their absence indicate NO DEHYDRATION

1. Give your child fluid, food and zinc according to the plan for treating diarrhea at home (Plan A)

2. Inform the mother about the condition requiring immediate re-treatment. Re-examination after 3 days in the absence of improvement.

If it is not possible to conduct the Plan B, send it to the hospital

In the presence of blood in emptying (GEMOCOLIT), give the first dose of ceftriaxone to the intestinal tract and direct the child to the in-patient department

Treatment according to plans A, B, C depending on Algorithm of Integrated Management of Childhood Illness (IMCI)

Plan A: TAKE DIARRHEA AMBULATORY (AT HOME)

Inform the mother about «3 home treatment rules» :

1. Let's add an additional volume of liquid
2. Give zinc (for children aged 2 months to 5 years)
3. Continue feeding
4. When reapply for medical assistance.

DELIVER ADDITIONAL VOLUME OF LIQUIDS (as much as a child can drink)

CALL FOR MATTER: often breastfeed, increase the duration of each feeding. If the baby is exclusively breastfed, give the ORS or pure water extra breastfeeding.

If the baby is not exclusively breastfeeding, in addition to feeding, give ORS or pure water, eat liquid food (rice broth, soup, compote of apples and pears, after 2 years you can give tea).

If the child's condition deteriorates ¬ immediate treatment

TO TEACH THE MOTHER TO PREPARE ORS AND GIVE FOUR THE CHILD.

EXPLAIN FOR THE MOTHER, WHAT VOLUME OF LIQUID ARE REQUIRED GIVE FOR THE CHILD ADDITIONAL

Before 2 years	From 50 to 100 ml after every liquid feces
2 year and older	From 100 to 200 ml after every liquid feces

Give zinc (a child aged 2 months to 5 years old)

2 -6 month	10 mg for 14 days
6 month and older	20 mg for 1 days

Tell to mother:

Give for the child a liquid with little frequent sips from the cup.

If the child has a vomiting, wait 10 minutes, and continue on, but more slowly.

Continue to give the fluid in addition to the disappearance of diarrhea.

CONTINUE REMAINING
PROMOTE WHEN YOU NEED TO RETURN FOR MEDICAL AID

Plan B: TAKE MEDIUM-SUSTAINED RESPONSE WITH AID ORAL SOLUTIONS (ORS)

Give the child a recommended ORS for 4 hours

DETERMINE VOLUME OF ORS WHAT SHOD BE USED AFTER FOR FIRST 4 HOURS

BODY WEIGHT	< 6 kg.	6 - < 10 kg.	10 -< 12 kg.	12 -19 kg.
AGE	Before 4 month	4-12 month	12 m. -2 year	2 – 5 year
ml.	200 - 450	450 - 800	800 - 960	960 - 1600

*Focus on age only if you do not know the weight of the child's body.

Approximately, the required ORS (in ml) can also be calculated if the body weight of the child (in kg) is multiplied by 75.

-If the child still wants an ORS, give him another.

-For children under 6 months of age who are not breastfed, let's also an additional 100-200 ml of pure water during this period, if you use a standard ORS . This is not necessary if you use a solution with reduced osmolarity.

SHOW THE MATHER HOW TO GIVE ORS.

- Let's take a little frequent sip of the cup.

-If your child has a vomiting, wait 10 minutes, and continue on, but more slowly.

-Continue feeding at the request of the child.

THROUGH 4 HOURS:

-Restore the child's condition, assess the degree of dehydration.

-Choose the appropriate plan for the continuation of treatment (in case of progression of dehydration - go to plan C; if the child's condition remains stable, but without deterioration - continue treatment according to plan B. If the condition of the baby is normal and there are no signs dehydration, it is considered that the child is completely rehydrated. In case they remain manifestations of acute intestinal infection, it is necessary to conduct rehydration according to plan A).

-Continue the baby's feeding

The student who passes the exam records the diagnosis and marks the necessary medication	
1.	Diagnosis: 1. Secretory diarrhea 2. Moderate dehydration
2	Continue breast-feeding as needed
3	To add an additional liquid of 50-100 ml after each liquid feces (Plan A)
4	Dosage ORS 500 - 700 ml for 4 hours, then continue to give the fluid in addition to the disappearance of symptoms (Plan B)
5.	Intravenous administration of Ringer-Lactate 30 ml / kg for 1 hour and 70 ml / kg for the next 5 hours (Plan C)
6.	To take one dose of Ibuprofen RD 10 mg / kg (5 ml)
7.	Enter Cefotaxim 50 mg / kg intramuscularly
8.	IMPORTANT to direct the child to an infectious hospital
9.	Inform the mother about the conditions that require immediate re-treatment. If there are no other difficult manifestations, treat at home,

5. Equipment:

1. Letter with the task and the list of drugs
2. Handle

6. Normative documents:

1. Уніфікований клінічний протокол первинної медичної допомоги Інтегроване ведення хвороб дитячого віку (наказ МОЗ України №438 12.05.2016)
2. Chart Booklet «Integrated Management of Childhood Illness: distance learning course» (2014)

Task 13. Diagnosis and treatment of common diseases in children (pediatrics, neonatology, children's infectious diseases). Diagnostic and treatment hemocolitis, moderate dehydration

1. Authors: Yurchenko I.V., docent of the department of children infectious diseases;
   Pitel A.A. assistant of the department of children infectious diseases.
2. Professional standard
   Medical care children with hemocolitis, moderate dehydration
3. Test capacity
   - Explanation of clinical diagnose.
   - Chose medicine according check-list

1. Scenario 13: You are general practitioner. The mother with the child of 5 month (weight 6,8 kg) addressed to you with complains on high temperature, loss of appetite, vomiting 3 time a day and frequent feces 6-7 times a day with an admixture of blood. The child is ill for the first day, on a breastfeeding. The child can drink and breastfeed. No cramps and it was not. Consciousness is not disturbed.

During examination: restless and irritating, eagerly drinks water, eyes is not sunken, skins is pink, and hot, the skin folds immediately. Temperature 39°C.

Your task: write a preliminary diagnosis and chose the necessary treatment

2. Briefing 13: You are general practitioner. The mother with the child of 5 month (weight 6,8 kg) addressed to you with complains on high temperature, loss of appetite, vomiting 3 time a day and frequent feces 6-7 times a day with an admixture of blood.

Task: write a preliminary diagnosis and chose the necessary treatment

The student must pronounce every action.

3. Algorithm of the action of the primary link

1. Whether the child has diarrhea? If yes, ask how long it takes place? Whether there are admixture of blood in feces?

2. Evaluate the general condition of the child. The child: Lethargic or unconsciousness? Restless and irritating?

3. Evaluate whether there are sunken eyes.

4. Suggest the child drink. The child: Not able to drink or drinking poorly? Drinks eagerly, thirsty?

5. Pinch the skin of the abdomen. Does it go back: Very slowly (longer than 2 sec.)? Slowly?

Two of the following (symptoms) signs indicate severe dehydration:

1) Lethargic or unconsciousness
2) Sunken eyes
3) Not able to drink or drinking poorly
4) Skin folds out very slowly

If the child has not the other severe classifications:

1. Give the child fluid as in a case of severe dehydration (Plan C)
2. If the child has the other severe classifications: URGENTLY refer the child to the hospital with mother, on the way continuing treatment according Plan C

Advise mother to continue breastfeeding.

Two of the following (symptoms) signs indicate moderate dehydration:

1) Restless, irritable
2) Sunken eyes
3) Drinks eagerly, thirsty
4) Skin pinch goes back slowly

1. Give the child fluid, meal and zinc accordingly recommendation Plan B
2. If the child has the other severe classifications: URGENTLY sent the child to the hospital with mother, on the way give the child (ORS) frequent fractional portions

Advise mother to continue breastfeeding.

Less than two signs indicate absence of dehydration:

1. Give the child extra fluid, meal and zinc supplements accordingly the plan of treatment diarrhea at home Plan A
2. Inform mother about child condition and when to return. Reassess the child in three days in the absence of improvement.

If there is no possibilities in realization Plan B, refer the child to hospital

If there is blood in feces give the first dose of ceftriaxon intramuscular and refer the child to hospital

Treatment according plan A, B, C at dependence on Algorithm of Integrated Management of Childhood Illness (IMCI)

Plan A: TREAT DIARRHEA AT HOME

Inform mother about 3 rules at home:

1. Give extra fluid
2. Give zinc supplements (age 2 months up to 5 years)
3. Continue breastfeeding
4. When to return

Let’s add extra fluid volume (as much as a child will drink)

Advise mother: often breastfeed, to increase the duration of each feed.

If the child is exclusively breastfed, give ORS or clean water in addition to breast milk.

If the child is not exclusively breastfed, give one or more of the following: ORS solution, food-based fluids (such as soup, rice water, and yoghurt drinks, after 2 years old - tea), or clean.

In case of deterioration of the condition immediate return.

Teach mother how to mix and give ORS.

Explain the mother which volume of fluid she must give the child additionally:

up to 2 years	from 50 to 100 ml after each loose stool
2 years and oldere	from 100 to 200 ml after each loose stool

Give zinc (child from 2 months to 5 years)

2-6 month	10 mg for 14 days
6 month and older	20 mg for 14 days

Tell mother:
Give frequent small sips from a cup.

If the child vomits, wait 10 minutes. Then continue, but more slowly.

Continue to give extra fluid till absence of diarrhea

CONTINUE BREASTFEEDING
Inform mother when to return

Plan B: TREAT MODERATE DEHYDRATION WITH ORAL REHIDRATION SAULT (ORS)

Give the child recommended amount of ORS over 4-hour period
DETERMINATE AMOUNT OF ORS TO GIVE DURING FIRST 4 HOURS

WEIGHT	< 6 kg	6 - <10 kg	10 - <12 kg	12 - 19 kg
AGE	Up to 4 months	4 months up to 12 months	12 months up to 2 years	2 years up to 5 years
ml	200 -450	450 - 800	800 - 960	960 - 1600

* Use the child's age only when you do not know the weight. The approximate amount of ORS
required (in ml) can also be calculated by multiplying the child's weight (in kg) times 75.

- If the child wants more ORS than shown, give more.
- For infants under 6 months who are not breastfed, also give 100 - 200 ml clean water during this period if you use standard ORS. This is not needed if you use new low osmolarity ORS.

SHOW MOTHER HOW TO GIVE ORS SOLUTION.
- Give frequent small sips from a cup.
- If the child still vomit, waiting 10 minutes and continue more slowly.
- Continue breastfeeding whenever the child wants.

AFTER 4 HOURS:
- Reassess the child and classify the child for dehydration.

-Select the appropriate plan too continue treatment (in a case of increase dehydration use Plan C; if the condition of the child is not worsen continue treatment according plan B. If the

condition of the child improved without signs of dehydration it considered that the child is rehydrated. In case the signs of acute intestinal infection is still detect use plan A).

-Begin feeding the child.

The student write the diagnose and marked appropriate medication	
1.	Diagnose: 1. Hemocolitis 2. Moderate dehydration
2.	Advise mother to continue breastfeeding
3.	Give additionally 50–100 ml fluid after each loose stool (Plan A)
4.	Give ORS 450 – 700 ml per 4 hours, then continue give fluid till disappear the symptoms (Plan B)
5.	I/v Ringer-lactat 30 ml/kg per 1 hour and 70 ml/kg during next 5 hours (Plan C)
6.	Give 1 dose of Ibuprofen 10 mg/kg (5 ml)
7.	Ceftriaxon intramuscular 50 mg/kg
8.	URGENTLY send the child to the hospital
9.	Inform mother the condition of child that need immediate return

5. Equipment:

1. Paper shit with the task and least of medication
2. Pen

6. Legislative documents:

1 Уніфікований клінічний протокол первинної медичної допомоги Інтегроване ведення хвороб дитячого віку (наказ МОЗ України №438 12.05.2016)
2. Chart Booklet «Integrated Management of Childhood Illness: distance learning course» (2014)