

Semmelweis University, Faculty of Medicine - undivided, one-tier training in general medicine

Name of the host institution (and any contributing institution):

Gyermekgyógyászati Klinika - Tűzoltó utcai részleg

Name of subject in Hungarian: Gyermekgyógyászat

Name of subject in English: Pediatrics

Name of subject in German: Kinderheilkunden

Credit value of the course: 7

Semester: 9th semester, 10th semester

(in which the subject is taught according to the curriculum)

Weekly hours	Lecture	Practice	Seminar
7.0	0.0	5.0	2.0

Semester hours	Lecture	Practice	Seminar
0.0	0.0	0.0	0.0

Type of course:

obligatory

Academic year:

2026/27

Language of instruction (for optional and elective subjects):

Course code:

AOKGY21121_1A

(in the case of a new course, to be completed by the Dean's Office, following approval)

Course coordinator name: Dr. Kovács Gábor (klinikai főorvos)

Course coordinator location of work, telephone availability: SE Pediatrics Center Tűzoltó Street Department 06-20-825-9265

Course coordinator position: professor

Course coordinator Date and number of habilitation: 02.06.2009. Number: 279.

Objectives of the course, and its place in the curriculum of the medical training program:

The main aim of the fifth-year block of paediatrics is to teach the most typical clinical symptoms and the most common diseases, as well as the special features of the specialty and its everyday routine, and to acquire practical knowledge.

Format of the course (lectures, group work, practical lessons, etc.):

Ward practices, seminars, problem-oriented workshops.

Competencies acquired through completion of course:

Paediatrics is a speciality dealing with specific problems and diseases of a large population. Our aim is to ensure that newly graduated doctors have up-to-date theoretical and practical knowledge in paediatrics.

Course outcome (names and NEPTUN ID of related subjects):

AOKGY2849_SA, AOKGY1848_SA

Prerequisites for course registration and completion: (NEPTUN ID):

Internal Medicine I.: AOKBOK784_1A

Laboratory Medicine: AOKLM1079_1A

Medical Imaging: AOKOKA750_1A

In the case of multi-semester courses, position on the possibility of and conditions for concurrent registration:

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The number of students required to start the course (minimum, maximum), method of selecting participants:

Based on registration in Neptun, maximum 25 people per five-week course.

Detailed course syllabus (if the course can be divided into modules, please indicate): (Theoretical and practical instruction must be broken down into hours (weeks), numbered separately; names of instructors and lecturers must be listed, indicating guest lecturers/instructors. It cannot be attached separately! For guest lecturers, attachment of CV is required in all cases!)

The subject is taught in a block system. During the 5-week block, students attend 14 days of theoretical and practical sessions at the Department. The final examination will take place in the last week of the course. The daily schedule includes bedside practices, special practices, consultations and seminars.

Students will participate in small groups in bedside practices. During these practices, they acquire basic knowledge of the physical examination of children and discuss the problems, differential diagnosis and therapeutic options for patients.

During the special practices, a specialist of a subspecialty will present the key issues of their field.

The aim of the consultations is a practice-oriented, small group discussion of the given topic with the active involvement of the students. The pediatric aspects of emergency care will be highlighted.

English 5th year 2026-27																			
	Time	Monday				Tuesday				Wednesday				Thursday	Friday				Time
	Group	A/1	A/2	B/1	B/2	A/1	A/2	B/1	B/2	A/1	A/2	B/1	B/2		A/1	A/2	B/1	B/2	Group

14:30-16:00	Practice																								
	heart and circulation	5A	Pulmo	SBAR OSCE Case 5: FBAO + Test 1 evaluation TÚZOLTÓ DAY/BÓKAY DAY	2A	Neuro	Practice neuro	Surgery	Gastro	Lumbar puncture	1A	1B	Practice abdomen	Surgery : central lines feeding tubes invasive devices	Practice endocrine system, ENT	OSCE Case 7: BLS (infant) OSCE Case 8: BLS (child) OSCE Case 9: BMV	14:30-16:00								
		8:45-9:30				Immunology consultation				OSCE Case 6: meningitis					8:45-9:30	9:30-9:45		Oncology pract. (Túzóltóban) 8:00-9:30	Neurology pract. (Túzóltóban) 8:00-9:30	Break	Oncology spec. pract	-	Hematology spec. pract	-	9:30-9:45
Week 3																									
Day of																									

9:4
5-1
0:1
5

Rheumatology
consultation

9:
45
-1
0:
15

10:
15-
10:
30

PIC pract.
(Bókay, Üllői
út, Baross u)
8:45-10:15

Oncology
consultation

Hematology
consultation

10:
15-
10:
30

10:
30-
11:
00

Neurolog y pract. (Tűzoltó ban) 9:45-11:1 5	Oncolo gy pract. (Tűzoltó ban) 9:45-11 :15	Rheumatolog y spec practice
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10:
30-
11:
00

11:
00-
11:
15

Break	Oncology spec. pract	Break	Hematology spec. pract	11: 00- 11: 15
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11: 15- 11: 45	Infectious diseases pract. (Bókay) 10:30-11:15	Infectious diseases cons. (Bókay) 10:30-11:15	Break
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11: 00- 11: 45	11: :4 5- 12: :0 0	Infectious diseases cons. (Bókay) 11:15-12:00	Infectious diseases prac. (Bókay) 11:15-12:00	Break	Break	11: :4 5- 12: :0 0
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12:00-12:30	Workshop 9	Practice	Workshop 10		Practice	Workshop 11	Practice	12:00-12:30	
	Reumatology pract. (Tűzoltóban) 12:00-13:30	Hematology pract. (Tűzoltóban) 12:00-13:30	Urinalysis OSCE Case 10: urosepsis OSCE Case 11: pyloric stenosis + Test 2 evaluation	complete PE		joints, muscles Hematology: anaemia sepsis bleeding disorders	Altered mental state unconsciousness OSCE Case 12: DKA		Oncology

12:30-13:30

Neuro	5A	5A	Gastro
13:30-14:00	Break		Break

Nephrology cons. (Bókay)
13:30-14:15

Nephrology pract. (Bókay)
13:30-14:15

12:30-13:30

Nephrology pract. (Bókay) 12:45-13:30	Nephrology cons. (Bókay) 12:45-13:30	1B	1A
Break	13:30-14:00		

Hematology pract. (Tüztöltőben) 13:45-15:15		14:00-14:30	Break		Works hop 9		Reumatology pract. (Tüztöltőben) 13:45-15:15		Break		Works hop 10		Break		Work shop 11		14:00-14:30			
14:30-16:00		Endocrinology pract. (Bókay) 14:30-15:15		Endocrinology cons. (Bókay) 14:30-15:15		Practice	Urinalysis	Practice	Hematology: anaemia sepsis bleeding disorders	Practice	Altered mental state unconsciousness	14:30-16:00								
		5A	Neuro	Gas tro	5A	complete PE	OSCE Case 10: urosepsis OSCE Case 11: pyloric stenosis + Test 2 evaluation	joints, muscles		Oncology										
			8:30-9:00						QR code evaluation			OSCE Case 12: DKA								
9:00-9:30		Practical Exam (Komplex physical examination + OSCE)																		
9:30-10:00																				
10:00-10:30																				
10:30-11:00																				
11:00-11:15	Surgery consultation																			
11:15-12:00		Break																		
12:00-13:30	Workshop 12	Practice																		
	complex case presentation ppt, feedback	haematology																		
		1A	1B																	
13:30-14:00		Break																		
14:00-14:30	Break	Workshop 12																		
14:30-16:00	Practice	complex case presentation feedback																		
	haematology																			
	1A																			

Main topics of the practices:

- Medical history taking
- Assessment of presenting complaints
- Pediatric physical examination
- Physical examination of infants
- Documentation of physical status
- Pediatric ABCDE assessment
- Examination of the respiratory system
- Examination of the cardiovascular system
- Pediatric neurological examination
- Examination of the abdomen and abdominal organs
- Examination of the head and neck
- Examination of lymph nodes
- Examination of the integumentary system
- Examination of the musculoskeletal system
- Examination of the genital organs
- Pulmonology special practice
- Gastroenterology special practice
- Neurology special practice
- Oncology special practice
- Hematology special practice

- Rheumatology special practice
- Surgery special practice
- Radiology special practice
- Endocrinology special practice (Pediatric Center, Bókay Street Department)
- Nephrology special practice (Pediatric Center, Bókay Street Department)
- Infectious Diseases special practice (Pediatric Center, Bókay Street Department)
- Neonatology special practice (Pediatric Center, Bókay Street Department; Department of Obstetrics and Gynecology, Baross Street Unit)

Main topics of the seminars:

- Fluid therapy
- Fever and febrile seizures
- Principles of emergency and critical care
- Pediatric pulmonology
- Pediatric cardiology
- Emergency ECG interpretation
- Pediatric gastroenterology
- Pediatric neurology
- Pediatric oncology
- Pediatric hematology
- Pediatric immunology
- Pediatric rheumatology
- Pediatric surgery
- Pediatric radiology
- Communication

Main topics of the workshops:

- Medical history taking, basic communication skills, percentile charts, fever
- chart documentation
- Fluid therapy, types of infusions, gastroenteritis scenario
- ABCDE assessment, oxygen support therapies, venous access, croup scenario
- Asthma management, bronchodilators, asthma and pneumonia scenario
- SBAR handover, foreign body airway obstruction scenario
- Lumbar puncture, meningitis scenario
- Urinalysis interpretation, urosepsis and pyloric stenosis scenario
- Bag-mask ventilation, infant and pediatric BLS scenario
- Invasive devices
- Hematology case discussions
- Unconscious child, altered mental status, diabetic ketoacidosis scenario
- Discussion of complex pediatric cases

Tutors:

Dr. András Noémi, Dr. Bakó Dorottya, Dr. Balázs Dóra, Dr. Bartha Áron, Dr. Bagyuráné Dr. Frank Veronika, Dr. Benyó Gábor, Dr. Bertalan Rita, Dr. Botlik Dóra, Dr. Botos Péter, Dr. Bots Bianka, Dr. Brückner Edit Ágota, Dr. Búdi Tamás, Dr. Constantin Tamás, Dr. Czövek Dorottya, Dr. Csóka Monika, Dr. Csordás Katalin, Dr. Dobner Sarolta, Dr. Egyed Bálint, Dr. Erdélyi Dániel, Dr. Erdélyi-Nagy Blanka, Dr. Farkas Márk Kristóf, Dr. Felkai Luca, Dr. Frank Veronika, Dr. Garan Diána, Dr. Gács Zsófia, Dr. Garami Miklós, Dr. Goschler Ádám, Dr. Hegedűs Katalin, Dr. Hegyi Márta, Dr. Horváth Bertalan, Dr. Horváth Klára, Dr. Horváth Zsuzsanna, Dr. Hosszú Éva, Dr. Jenővári Zoltán, Dr. Juhász Orsolya, Dr. Kemény Viktória, Dr. Kiss Tamás, Dr. Klaus Laura, Dr. Koch Dóra, Dr. Kónya Sárma Sultana, Dr. Koós Olivér, Prof. Dr. Kovács Gábor, Dr. Kovács Janka, Dr. Lengvári Lilla, Dr. Lengyel Anna, Dr. Liptai Zoltán, Dr. Müller Judit, Dr. Naghizadeh Farzaneh, Dr. Nemes-Csertő Alinka, Dr. Németh Ágnes, Dr. Osztermayer Dorka Réka, Dr. Pálkás Annamária, Dr. Papp-Bozzai Barbara, Dr. Párkányi Rebeka, Dr. Pásztor Borbála, Dr. Petes Cintia, Dr. Petró Anna, Dr. Péter Réka, Dr. Pfeffer Anita, Dr. Pinti Éva, Dr. Podráczky Noémi, Dr. Pomlányi Petra, Dr. Ponyi Andrea, Dr. Prokopp Tamás Benedek, Dr. Ranyák Márta Szilvia, Dr. Repkényi Dorottya, Dr. Sándor Réka Zsuzsanna, Dr. Sükösd Zita, Dr. Szabados Márton, Dr. Szabó András Lajos, Dr. Szabó Léna, Dr. Szabó Sándor, Dr. Szarvas Gábor Zsombor, Dr. Szikszay Orsolya, Dr. Tomsits Erika, Dr. Tóth-Szumutku Fanni, Dr. Turi Alexandra, Dr. Varga Martin István, Dr. Váncza Lóránd, Dr. Velkey Ábel, Dr. Vojnisek Zsuzsanna, Damó Eszter, Durst Anna, Bagó György, Kalmárné

Rikker Zsuzsanna, Magyar Emma,

Dr. Agócs Róbert, Dr. Balogh Dóra Csenge, Dr. Bán-Kovács Nóra, Dr. Berecz Botond, Dr. Brandt Ferenc, Dr. Csizek Zsófia, Dr. Fanczal Eszter, Dr. Farkas Ferenc Balázs, Dr. Gayerhossz Katalin, Dr. Harmath Ágnes, Dr. Kalocsai Krisztina, Dr. Kardics Kinga, Dr. Kaucsár Tamás, Dr. Kiss András, Dr. Kollár Kinga, Dr. Liptovszky Janka, Dr. Luczay Andrea, Dr. Kovács Lajos, Dr. Körner Anna, Dr. Krikovszky Dóra, Dr. Krivácsy Péter, Dr. Lódi Csaba, Dr. Lóth Szendile, Dr. Mikes Bálint, Dr. Nagy Zsuzsanna, Dr. Pék Tamás, Dr. Pékli-Tóth Fanni, Prof. Dr. Reusz György, Dr. Sallay Péter Gergely, Dr. Seri István, Dr. Szász Barbara, Dr. Szűcs-Szakács Liliána, Prof. Dr. Szabó Miklós, Dr. Tóth-Heyn Péter

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Other courses with overlapping topics (obligatory, optional, or elective courses) in interdisciplinary areas. To minimize overlaps, topics should be coordinated. NEPTUN ID(s) of courses (to be provided):

AOKGRI966_1A, AOKBOK784_1A, AOKBHK1118_2A, AOKNO1755_1A

Requirements for attendance, options for making up missed sessions, and method of absence justification:

Students are required to bring a stethoscope and a lab coat to all practical sessions; attendance cannot be credited without a stethoscope. Participation is recorded individually on a practical attendance sheet and must be validated by the instructor. Absences are subject to the applicable provisions of the Study and Examination Regulations (TVSZ).

Missed sessions may be completed in consultation with the instructors, primarily during designated Thursday make-up sessions. Alternatively, students may attend equivalent

sessions during the relevant block's examination week, join another group's corresponding session, or make up the missed content during weeks specifically allocated for this purpose in the timetable.

Students will have the opportunity to evaluate both the course and its instructors through an online platform during the rotation period, using the link provided during the sessions. Active participation in providing feedback is strongly encouraged in order to support the continuous improvement of the program.

Assessment methods during semester (number, topics, and dates of midterms and reports, method of inclusion in the course grade, opportunities for make-up and improvement of marks):

(number, topics, and dates of midterms and reports, method of inclusion in the course grade, opportunities for make-up and improvement of marks)

The interactive nature of the exercises and consultations allows students to check their knowledge

Number and type of individual assignments to be completed, submission deadlines:

Students are required to complete two written test series independently on the Moodle platform, which must be presented during the Monday workshops of the second and third teaching weeks. In addition, within small-group work, they are expected to analyze pre-assigned complex cases and present their findings at the Monday workshop of the fourth teaching week.

Requirements for the successful completion of the course:

The requirements for obtaining credit and eligibility for the theoretical exam include full participation in both theoretical and practical sessions according to the prescribed standards, as well as the successful completion of the two written test series available on the Moodle platform and the presentation of the pre-assigned complex cases.

Type of assessment:

terminal examination

Exam requirements (list of topics, topics of the test exam, and the optional project topics accepted as an exam)

Practical Exam:

- Bedside Patient Examination: The instructor assesses the student's knowledge of fundamental pediatric clinical care during a direct patient evaluation.
- OSCE (Objective Structured Clinical Examination): Students are tested on randomly selected scenario-based cases encountered during the workshops.

Oral examination: Students are evaluated on the knowledge outlined in the prescribed topic list, drawing and discussing two topics orally.

List of topics for the oral examination:

1. Definitions in perinatology, gestational and mortality data, birth related concepts
2. Aspects of newborn care, Apgar scoring system
3. Physiologic growth, anthropometric features, normal development from newborn to school age
4. Nutrition and feeding of a healthy infant and child, nutrition and feeding of premature babies, energy needs. Physiologic growth of a healthy infant
5. Newborn and genetic screening, prevention
6. Chromosomal abnormalities
7. Neonatal respiratory adaptation disorders and lung disease
8. Neonatal infections
9. Neonatal jaundice
10. Complications of prematurity (BPD, ROP, NEC, IVH)
11. Cardiopulmonary resuscitation (CPR) in infants and children
12. Neonatal and infant CPR (cardiopulmonary resuscitation)
13. Meconium ileus, intestinal atresia, pyloric stenosis, diaphragmatic hernia
14. Ileus, intussusception, volvulus, incarcerated hernia, appendicitis.
15. Obstipation. Hirschsprung disease.
16. Testicular and ovarian torsion. Cryptorchism.
17. Coagulopathies
18. Anaemia: signs and symptoms and evaluation
19. Leukaemia.
20. Prevention of infectious diseases. Vaccination
21. Signs of sepsis. Management of sepsis in the first few hours
22. Herpes virus infections
23. Measles, rubella, scarlet fever
24. Systemic autoimmune disease

25. Allergic disease in infancy and childhood. Definition of atopy
26. Pneumonia. Age related most common pathogen
27. Cystic fibrosis
28. Obstructive bronchitis, asthma bronchiale, acute subglottic laryngitis
29. Alarming signs of CNS diseases. Necessary examinations. Lumbar puncture
30. Inflammatory disease of the nervous system
31. Facial nerve palsy
32. Seizures in childhood. Febrile seizure
33. Diabetes mellitus. Treatment of diabetic ketoacidosis
34. Congenital adrenal hyperplasia
35. Disease of the thyroid gland
36. Endocrine disorders of calcium and phosphate metabolism. Rickets.
37. Growth disorders (short stature, tall stature)
38. Disorders of pubertal growth and sexual maturation
39. Henoch-Schönlein purpura
40. Kawasaki syndrome, MISC
41. Urinary tract infection. (localization, course of the disease, treatment, complications)
42. Congenital disorders of the kidney and urinary tract
43. Glomerular kidney disease
44. Nephrosis syndrome
45. Cyanotic congenital heart disease
46. Acyanotic congenital heart disease
47. Malabsorption. Celiac disease
48. Cholestatic liver disease in childhood
49. Hepatitis in childhood
50. Most common infectious enteritis

- 51. Inflammatory bowel disease: ulcerative colitis, Crohn's disease
- 52. Alarming signs of abdominal diseases
- 53. Enuresis. Polyuria and polydipsia
- 54. Edema
- 55. Acid-base homeostasis, treatment of acid-base balance disorders
- 56. Fever, management of fever, antipyretics
- 57. Pertussis, influenza, RSV and COVID

Clear, specific minimum requirements for assessment. (The list of mandatory concepts, parameters, diagrams, calculations, and practical skills required to obtain a passing grade, as well as the criteria for the completion and evaluation of project assignments accepted as an exam.) A link published on the department's website referring to the minimum requirements of the course.

The notes available on the Moodle platform cover the knowledge required for the topics.

Minimum requirements:

1. Definitions in perinatology, gestational and mortality data, birth related concepts (Dr. Andrea Valek)

- Mature newborn: born between 37 and 42 completed gestational weeks.
- Preterm infant: born before 37 completed gestational weeks.
- Low birth weight: <2500 g, very low birth weight: <1500 g, extremely low birth weight: <1000 g.
- SGA (small for gestational age): birth weight <10th percentile for gestational age.
- Infant mortality: the number of children who die before 1 year of age, per 1000 live births.

2. Aspects of newborn care, Apgar scoring system (Dr. Zsuzsanna Nagy)

- Physiological basis of adaptation
 - o Respiratory and circulatory adaptation is initiated by the first breaths and the expansion of the lungs.
- Principle of umbilical cord care

- o Delayed cord clamping (at least 1 minute) is recommended if resuscitation is not needed.
- Normal vital signs
- o Respiration: 20–60/min
- o Pulse: 100–160/min
- o Capillary refill: ≤ 3 s
- Vitamin K prophylaxis
- o 2 mg orally within 2 hours for prevention of neonatal bleeding tendency.
- Examination of peripheral pulse
- o Palpation is mandatory, especially on the lower extremity; its absence may indicate coarctation of the aorta.

3. Physiological growth, anthropometric features, normal development from newborn to school (Dr. Zsüliet Bojtár)

- What does the percentile curve show, what is its definition?
- o It expresses what percentage of the measured population belongs to a given value of a variable, e.g. body weight.
- Average body weight measured at birth and its change until puberty based on Hungarian data.
- o In Hungary the average is 3400 g; it doubles by 6 months of age, triples by 1 year of age, then increases by 2 kg/year until puberty.
- What should be considered when speech development is delayed?
- o It must be considered whether the child's hearing is intact; if it is, autism spectrum disorder and/or global developmental delay should be investigated.

4. Nutrition and feeding of healthy infants and children, nutrition and feeding of preterm babies, energy needs. Physiological growth of a healthy infant (Dr. Tímea Kollár)

- Optimal nutrition of a healthy newborn in the first 6 months is on-demand, responsive, exclusive breastfeeding, without time restriction, ideally directly from the breast.
- Breastfeeding is recommended to continue alongside complementary feeding after 6 months of age until 1–2 years of age, or even longer.
- List at least 4 beneficial effects of breast milk!
- o Its composition is constantly changing and is the most optimal for newborn/infant development.
- o It helps the postnatal adaptation of the gastrointestinal system.

- o It supports the development of the age-appropriate microbiome of the intestinal tract, thereby reducing the risk of atopic/allergic diseases and chronic intestinal diseases (Crohn's disease, ulcerative colitis).
 - o It protects against infectious diseases (gastrointestinal infections, otitis media).
 - o It reduces the risk of certain pediatric hematologic malignancies (AML, ALL).
 - o It supports proper development of the eye and nervous system.
 - o It reduces the risk of obesity, hypertension, and diabetes mellitus.
- Contraindications to breastfeeding
 - o Maternal causes: HIV infection, active tuberculosis, medications with absolute contraindication (e.g. cytostatics).
 - o Infant causes: PKU, galactosemia.
 - Physiological growth: the infant's birth weight doubles by 6 months of age and triples by 1 year of age; the postnatal 7-10% weight loss stops by day 3-5, and birth weight is regained by day 10-14.
 - Due to catch-up growth, preterm infants require higher protein and calorie intake; appropriate weight and head circumference gain are prerequisites for favorable neurologic outcome.
 - In preterm infants, enteral feeding with colostrum and the mother's own milk is of outstanding importance, because it reduces the incidence and severity of NEC, ROP, and late sepsis (LOS).

5. Neonatal and genetic screening, prevention (Dr. Petra Zsidegh)

- Definition of neonatal metabolic screening
- When and how newborn screening is performed
- Why do we screen? Name at least 4-6 diseases among the screened disorders.

6. Neonatal respiratory adaptation disorders and lung diseases (Prof. Dr. Miklós Szabó)

- Characteristic signs of dyspnea in neonatal respiratory distress:
 - o Nasal flaring, intercostal and sternal retractions, paradoxical breathing, expiratory grunting.
- Three questions used for rapid assessment to decide on the state of the newborn and the need for action:
 - o Is the newborn mature?
 - o Is the baby crying or breathing effectively?

- o Is muscle tone good?
- o If the answer to all three questions is yes, there is no immediate medical intervention needed.
- Mandatory neonatal prophylaxis in Hungary currently:
 - o Vitamin K administration, BCG vaccination.
- Stages of germinal matrix-intraventricular hemorrhage
 - o Stage I: germinal matrix hemorrhage.
 - o Stage II:
 - § Bleeding into the lateral ventricle without acute ventricular dilatation.
 - § The hemorrhage occupies <50% of the ventricular volume.
 - o Stage III:
 - § Bleeding into the lateral ventricle with acute ventricular dilatation.
 - § The hemorrhage occupies >50% of the ventricular volume.
 - o Stage IV:
 - § Intraventricular hemorrhage associated with ipsilateral periventricular hemorrhagic infarction (PHH).
- Most effective method for prevention of RDS in preterm infants, and when it should be used?
 - o Antenatal steroid treatment in threatened preterm birth during the 23–35 weeks of gestation period.

7. Neonatal infections (Dr. András Kis)

- Through which routes can newborns become infected?
- Definition of neonatal sepsis, early and late sepsis.
- Causative agents of early and late sepsis, empirically chosen antibiotics.
- Clinical symptoms.

8. Neonatal jaundice (Dr. Lilla Sassi)

- Cause and typical timing of physiologic icterus
- Cause and typical timing of breast milk jaundice
- Indications and options for the treatment of hyperbilirubinemia

9. Complications of prematurity: BPD, ROP, NEC, IVH (Dr. Ákos Gasparics)

- What symptoms may bronchopulmonary dysplasia (BPD) cause?
- What are the risk factors for retinopathy of prematurity (ROP)?
- What options do we have for prevention of intraventricular hemorrhage (IVH)?
- What long-term consequences may intraventricular hemorrhage (IVH) have?

10. Sudden infant death (SIDS), infant mortality, demographic data (Dr. Erzsébet Várady)

- Options for the prevention of SIDS

11. Cardiopulmonary resuscitation (CPR) in infants and children (Dr. Ádám Goschler)

- What is the fundamental difference in the etiology of out-of-hospital cardiac arrests between children and adults?
- Steps of basic life support (without equipment) in infancy and childhood according to the ERC 2025 guidelines.
- Technique of performing chest compressions in infants and children.
- Steps of advanced life support if the initial rhythm is asystole.
- Steps of advanced life support if the initial rhythm is ventricular fibrillation.
- Adrenaline dose during resuscitation in infancy and childhood.

12. Meconium ileus, intestinal atresias, pyloric stenosis, diaphragmatic hernia (Dr. Zsuzsa Tallós)

- Differential diagnosis of mechanical neonatal ileus
 - o NEC, meconium ileus, volvulus, Hirschsprung disease, intestinal atresias.
- Meaning of the VACTERL association
 - o Vertebral developmental anomaly, Anal atresia, Cardiac developmental anomaly, Tracheoesophageal atresia, Renal developmental anomaly, Limb developmental anomaly.
- Symptoms of congenital pyloric stenosis
 - o non-bilious projectile vomiting after feeding, dehydration, metabolic alkalosis.
- Management of congenital diaphragmatic hernia:
 - o in severe cases intrauterine intervention, after birth stabilization of the newborn, lung-protective ventilation, treatment of pulmonary hypertension, surgical intervention.

13. Ileus, intussusception, volvulus, incarcerated hernia, appendicitis (Dr. Zsuzsa Tallós)

- Diagnosis of childhood ileus
 - o after physical examination, plain abdominal X-ray, contrast passage study if indicated, and abdominal ultrasound.
- Symptoms of intussusception
 - o periodic crampy abdominal pain, stool may be bloody, “currant jelly”-like, ileus symptoms.
- Meaning and treatment of volvulus:
 - o intestinal twisting, often developing on the basis of malrotation, associated with circulatory compromise of the bowel and risk of bowel necrosis; urgent surgical intervention is required, time is critical.
- Management of incarcerated inguinal hernia
 - o first attempt reduction of the incarcerated bowel; if unsuccessful, urgent surgical intervention is required.

14. Constipation. Hirschsprung disease (Dr. Zoltán Jenővári)

Constipation:

- Normal meconium passage in the newborn.
- Normal stool passage in infancy.
- Normal stool passage in toddlers.
- Definition of constipation
- Symptoms of constipation
- Treatment options.
- Some causes leading to constipation.

Hirschsprung disease:

- Which part of the intestinal tract is affected, and what is its pathological background?
- What neonatal abnormality may it cause?
- Forms of Hirschsprung disease?
- Symptoms of HD?
- Treatment options for HD

15. Testicular and ovarian torsion. Cryptorchidism (Dr. Zoltán Jenővári)

Ovarian torsion:

- Triggering causes
- Possible consequences
- How it is recognized in the neonatal period?
- What symptoms it causes in adolescence?
- Management, indications for surgery, possibilities of prevention

Cryptorchidism:

- Difference between retractile testis, undescended testis and nonpalpable testis.
- Causes in unilateral and bilateral cases
- What is the physiological state in preterm boys?
- Treatment options
- At what age should undescended and nonpalpable testis be operated on?
- When should retractile testis be operated on?

16. Coagulopathies (Prof. Dr. Gábor Kovács)

- Basic types and forms of coagulopathies.
- Management of critical bleeding states and the need for treatment.
- Life-threatening complications in bleeding disorders.
- Recognition and treatment of DIC.

17. Anaemia: Signs and symptoms, and evaluation (Dr. Judit Müller)

- Laboratory signs of hemolysis
- Normal RBC count, hemoglobin value, and MCV in a newborn and a 5-year-old child.
- The two most common causes of macrocytic anemia in children.
- Possible causes of normocytic anemia.
- Consequences of negative iron balance, and their laboratory confirmation.

18. Leukemias (Dr. Dániel Erdélyi)

- Which is the most common leukemia subtype in childhood?

- List at least 3 common presenting symptoms of leukemia
 - o from these 4: fever, symptoms of anemia, symptoms of thrombocytopenia, bone pain; alternatively, 2 rarer presenting symptoms may be accepted instead of one of these
- Blood count abnormalities seen in leukemias.
- List at least 4 elements of ALL treatment
 - o from these 7: intensive multi-agent chemotherapy, steroids, intrathecal chemotherapy, maintenance oral chemotherapy, cranial irradiation, allogeneic stem cell transplantation, new targeted therapies).

19. Prevention of infectious diseases, vaccinations (Dr. Tamás Pék)

Basic concepts of vaccination:

Active immunization:

- Antigens of the pathogen enter the body and trigger an immune response, which ideally results in protection against that pathogen.
- Immune memory is formed, so upon repeated exposure to the same antigen, the immune response becomes faster and stronger.

Passive immunization:

- Protective antibodies are administered which bind to the pathogen and block infection without generating an immune response.
- In contrast to active immunization, this provides short-term protection, usually for a maximum of 6 months.

Vaccine reaction:

- After vaccination, a symptom complex occurring:
 - o within 72 hours for vaccines containing inactivated antigens,
 - o 7-14 days after vaccination for vaccines containing live attenuated antigens and occurring in a significant proportion of vaccinated individuals as expected.
 - o local: swelling, redness, pain at the injection site, possibly numbness, pain resembling muscle soreness in the vaccinated limb.
 - o systemic: fever, discomfort, loss of appetite, fatigue, drowsiness after vaccination.

Vaccine complications:

- Allergic reaction, anaphylaxis.

Basic rules:

- Vaccination does not automatically mean protection.
- Inactivated vaccines may be administered with any other vaccine, either at the same time or with any time interval.
- Live-virus vaccines may be administered either at the same time or at least 4 weeks apart.

20. Signs of sepsis, management of sepsis in the first few hours (Dr. Klára Horváth)

- Definition of sepsis.
- Clinical signs of sepsis (respiratory, circulatory, neurologic).
- In sepsis management, mention the following: 100% oxygen, fluid bolus, antibiotics

21. Herpes virus infections (Dr. Kinga Kardics)

- Complications, clinical pictures, and treatment of HSV infection.
- Complicated forms of VZV infection.
- Differential diagnosis of EBV infection.

22. Measles, rubella, scarlet fever (Dr. Krisztina Kalocsai)

Measles:

- Characteristics of the pathogen, incubation period.
- Typical clinical symptoms (at least 3-5 symptoms should be mentioned)
 - o 2-4 days of high fever
 - o conjunctivitis
 - o rhinorrhea
 - o Koplik spots, maculopapular rash starting behind the ears on day 14, becoming confluent, and the course of the disease.
- The most common complications (at least 3 should be mentioned)
 - o In one third of cases
 - o interstitial giant-cell pneumonia, myocarditis, hepatitis, meningoencephalitis, late subacute sclerosing panencephalitis (SSPE), purulent bacterial otitis media, bacterial pneumonia.
- Differential diagnosis (at least 3 disorders with rash that must be distinguished):
 - o Epstein-Barr virus (EBV) infection, Parvovirus B19 infection, enterovirus infection, scarlet fever,

and non-infectious conditions such as Kawasaki syndrome, serum sickness, SLE.

- Prevention: vaccination.

Rubella:

- Importance of the disease.
- Cause and symptoms of congenital rubella syndrome.
- Prevention: vaccination.

Scarlatina:

- The cause of scarlet fever, *S. pyogenes* producing pyrogenic exotoxin A (SpeA) should be mentioned
- Typical age: 3-15 years
- Clinical picture (at least 4 symptoms should be mentioned):
 - o GAS pharyngitis: bright red pharynx, tonsillar exudate, petechiae on the soft palate, uvulitis, anterior cervical lymphadenitis, strawberry tongue (white strawberry tongue)
 - o fine maculopapular rash spreading centrifugally from the neck and chest wall, sparing the palms and soles, Pastia sign. The face is spared from rash.
 - o desquamation.
- Basic microbiological diagnosis: antigen detection, culture.
- The goal of treatment: at least 2 should be mentioned
- First-line antibiotic: penicillin.
- Complications (at least 2-3 should be known)
 - o suppurative complications and immune-mediated forms.
 - o Potentially life-threatening invasive forms: at least 2 should be known.
- At least 3 infectious and non-infectious diseases with rash to be distinguished.

23. Systemic autoimmune diseases (Dr. Tamás Constantin)

- List at least 2 childhood systemic autoimmune diseases
 - o systemic lupus erythematosus (SLE), juvenile dermatomyositis, scleroderma, antiphospholipid syndrome.
- Most common symptoms of SLE (at least 5)

- o fever, weight loss, characteristic skin symptoms (butterfly erythema), lymphadenopathy, hepatosplenomegaly, renal involvement (nephrosis, nephritis), serositis, myocarditis, pneumonitis, blood count abnormalities (anemia, leukopenia), neurologic symptoms.

- Characteristic symptoms of juvenile dermatomyositis

- o characteristic skin symptoms such as Gottron papules, heliotrope rash, proximal muscle weakness.

- Two major groups of juvenile scleroderma

- o localized (morphea) and systemic scleroderma.

24. Allergic diseases in infancy and childhood. Definition of atopy (Dr. Ádám Balogh)

- Definition and treatment of anaphylaxis.

- Principles of prevention.

- Concept of component testing.

25. Diseases of the ear (Dr. Zoltán Fent)

26. Pneumonia. Age related most common pathogen (Dr. Dóra Krikovszky)

- Most common pathogens by age.

- Distinction between typical and atypical (differential diagnosis, characteristics and therapy).

27. Cystic fibrosis (Dr. Dorottya Czövek)

- Cause of the disease and mode of inheritance

- o the most common autosomal recessive disease in the Caucasian population. It is caused by mutation of the CFTR gene.

- Most common symptoms (at least 5):

- o chronic respiratory infections, fatty stools, poor weight gain, chronic sinusitis, nasal polyposis, pancreatic insufficiency, diabetes mellitus, liver involvement/cirrhosis, infertility.

- What may suggest CF in the newborn period?

- o Meconium ileus.

28. Obstructive bronchitis, asthma bronchiale, acute subglottic laryngitis (Dr. Lajos Kovács)

- Cause, clinical picture, and treatment of obstructive bronchitis.

- Diagnosis and treatment of bronchial asthma.

- Subglottic laryngitis: cause, clinical picture, and treatment.

29. Alarm signs of CNS diseases, necessary examinations. Lumbar puncture (Dr. Zoltán Liptai)

- What are the 6 alarming symptoms of acute disease of the central nervous system?
 - o Meningeal irritation, diffuse encephalopathy, paresis or plegia, cerebellar ataxia, epileptic seizures, psychiatric symptoms.
- How should lumbar puncture be performed?
 - o Under sedation or anesthesia, by inserting between the spinous processes of L3-L4 or L4-L5 (at the level of the upper iliac crests) and collecting the necessary amount of sample from the subarachnoid space.
- Possible causes of meningeal irritation signs?
 - o Meningitis, pleuropneumonia, neck abscess, abdominal conditions, discopathies, myelitis, Guillain-Barré syndrome.

30. Inflammatory diseases of the nervous system (Dr. Zoltán Liptai)

- Most common causative agents of purulent meningitis after 3 months of age?
 - o *S. pneumoniae*, *N. meningitidis*, *H. influenzae* b.
- What is the CSF like in purulent meningitis?
 - o Increased pressure, turbid or opalescent, high cell count (up to several thousand/ μ L), neutrophil predominance, low glucose (0–2.2 mmol/L), high protein (1.0–5.0 g/L). Bacteria are often visible in the sediment smear.
- First-line empiric antibiotic in purulent meningitis beyond the newborn period, in an immunocompetent patient:
 - o Ceftriaxone or cefotaxime.
- What are the main initial symptoms of encephalitis?
 - o Headache, altered consciousness/mental status change, convulsions, focal signs.
- What are the presenting symptoms of Guillain-Barré syndrome?
 - o Progressive, symmetric, ascending weakness, hypo- or areflexia.

31. Facial nerve palsy (Dr. Léna Szabó)

- What are the most common causes of peripheral facial nerve palsy?
- What examinations are necessary in case of facial nerve palsy?

- What is the treatment of facial nerve palsy?

32. Seizures in childhood, febrile seizures (Dr. Léna Szabó)

- What are the most common provoking factors for seizures?
- Management of seizures.
- Definition of simple and complicated febrile seizure.

33. Diabetes mellitus. Treatment of diabetic ketoacidosis (Dr. Péter Tóth-Heyn)

- Definition of diabetes mellitus in numerical terms.
- Definition of diabetic ketoacidosis in numerical terms.
- In the management of DKA, the following must be mentioned:
 - o volume of fluid bolus, type of infusion.
 - o Maintenance fluid: type and volume.
 - o Insulin dose.

34. Congenital adrenal hyperplasia (Dr. Andrea Luczay)

- Features of salt-wasting crisis.
- Glucocorticoid replacement in emergency situations.

35. Diseases of the thyroid gland (Dr. Zita Halász)

- Causes and clinical symptoms of congenital and acquired hypothyroidism.
- Diagnostic methods for assessing thyroid function and thyroid structure.
- Definition of goiter and its WHO grading.

36. Endocrine disorders of calcium and phosphate metabolism. Rickets (Prof. Dr. András Szabó)

- Mechanism of hormonal regulation of calcium and phosphate metabolism.
- Diseases associated with low or high serum calcium levels and their pathomechanisms.
- Diseases associated with low or high phosphate levels and their pathomechanisms.
- Types of rickets and their pathomechanisms. Clinical symptoms and laboratory abnormalities of rickets.
- Treatment of disorders of calcium and phosphate metabolism.

37. Growth disorders: short stature, tall stature (Dr. Janka Liptovszky, Dr. Zsófia Gács)

- Definition of pathological height/growth rate.
- Calculation of parental target height.
- Physical abnormalities to look for in pathological short or tall stature.
- Use of percentile charts, BMI.

38. Disorders of pubertal growth and sexual development (Dr. Rita Bertalan)

- When do we speak of a disorder of sexual differentiation?
 - o In cases where there is a discrepancy between chromosomal, gonadal, external and internal genital, and psychosocial sex.
- When do we speak of early puberty in girls and boys?
 - o In girls if puberty starts before the age of 8, in boys before the age of 9.
- What do the Tanner stages describe?
 - o Description of pubertal stages. A: axillary hair, B: breast development, P: pubic hair, G: genitalia.
- What are the most common chromosomal DSDs?
 - o Turner syndrome, Klinefelter syndrome.

39. Henoch-Schönlein purpura (Dr. Andrea Ponyi)

- Symptoms of HSP.
- Examinations to be performed in a patient with HSP.
- Treatment of HSP.
- Possible complications of HSP.

40. Kawasaki syndrome. MISC (Dr. Zsuzsanna Horváth)

- Diagnostic symptoms of Kawasaki syndrome: fever, conjunctivitis, rash, lymphadenopathy, oral mucosal symptoms, hand-foot edema.
- Complications: coronary aneurysm, thrombosis.
- Main pillars of treatment: aspirin, IVIG.

41. Urinary tract infections: localization, course of the disease, treatment, complications (Prof. Dr. Attila Szabó, Dr. Bálint Mikes)

- **Leukocyturia:** more than 5-10 white blood cells are visible per microscopic field.

- **Symptoms of acute cystitis:** pollakiuria, dysuria, urgency, NO FEVER.
- **Symptoms of acute pyelonephritis:** FEVER, flank/low back pain, nausea/vomiting, feeding difficulties.
- **First-line antibiotic for acute pyelonephritis:** 2nd- or 3rd-generation cephalosporin; first-line imaging: abdominal ultrasound.
- **Duration of antibiotic treatment in acute pyelonephritis:** 10 days.
- **VUR evaluation is recommended:** in recurrent febrile urinary tract infections.

42. Congenital disorders of the kidneys and urinary tract (Prof. Dr. Attila Szabó, Dr. Bálint Mikes)

- **Multicystic kidney:** always unilateral, affecting one kidney.
- **Polycystic kidney:** cysts are present in both kidneys.
- **Hydronephrosis:** dilation of the renal pelvis and calyces.

43. Glomerular kidney diseases (Prof. Dr. Attila Szabó, Dr. Bálint Mikes)

- Nephritic syndrome: edema, hypertension, proteinuria, hematuria, impaired renal function.

44. Nephrotic syndrome (Prof. Dr. Attila Szabó, Dr. Bálint Mikes)

- Nephrotic syndrome: edema, hypoalbuminemia, nephrotic-range proteinuria, hyperlipidemia.

45. Cyanotic congenital heart diseases (Dr. Viktória Kemény)

- Definition of cyanotic heart defects.
- Groups of cyanotic heart defects: right-to-left shunt, complete mixing, separated circulation; mention at least one defect belonging to each group.
- Anatomy and therapeutic options of Tetralogy of Fallot and transposition of the great arteries.
- Importance of endocarditis prophylaxis.

46. Acyanotic congenital heart diseases (Dr. Andrea Tölgyesi)

- List of heart defects with left-to-right shunt.
- Symptoms of VSD: clinical findings, auscultation, chest X-ray, therapy.
- Clinical picture of coarctation of the aorta in infancy (early type) and in adulthood (late type); this latter form may also occur in childhood.

47. Malabsorption. Celiac disease (Dr. Zsuzsanna Vojnisek)

- Malabsorption may be suggested by:

- o diarrhea, steatorrhea, weight loss, growth retardation.
- Celiac disease:
- o gluten-induced autoimmune enteropathy in genetically susceptible individuals.
- What contains gluten?
- o wheat, rye, and barley.
- Treatment is a lifelong gluten-free diet.

48. Cholestatic liver diseases childhood (Dr. Antal Dezsőfi-Gottl)

- What is the difference between hepatocellular and obstructive cholestasis? Give one example of each.
- When and how should neonatal jaundice be investigated? What is the diagnostic threshold for conjugated bilirubin, and what is the most common cause of neonatal cholestasis?
- What is the essence of the Kasai operation (portoenterostomy), when is it indicated, and what is the most common early postoperative complication?
- List at least 4 diagnostic criteria for the diagnosis of Alagille syndrome. Which organ system involvement increases mortality the most?

49. Hepatitis in childhood (Dr. Antal Dezsőfi-Gottl)

- Compare the childhood features of HAV, HBV, and HEV infection with regard to route of transmission, risk of fulminant course, and chronic progression.
- Based on which autoantibody pattern do we distinguish type I and type II autoimmune hepatitis, and which type is more typical in younger childhood?
- Describe the standard pediatric treatment protocol for autoimmune hepatitis (AIH): which drugs are used, at what dose, and for how long, and what are the conditions for stopping therapy?
- What histologic changes characterize AIH? What is “interface hepatitis”?

50. Most common infectious enteritises (Dr. Nóra Judit Béres, Dr. Kata Gayerhosz)

- When is hospital treatment necessary for a patient with diarrhea?
- Most common viruses causing gastroenteritis.
- Most common bacteria causing gastroenteritis.
- When should antibiotic treatment be considered in diarrhea?

51. Inflammatory bowel diseases: ulcerative colitis, Crohn disease (Dr. Áron Cseh)

- What is the difference between Crohn disease and ulcerative colitis based on the affected

segment of the digestive tract and the extent/depth of inflammation?

Correct answer: Crohn disease can affect any part of the digestive tract from the oral cavity to the anus in a segmental distribution, and the inflammation is transmural, involving the full thickness of the bowel wall. Ulcerative colitis affects only the large intestine, most often distally (rectum and sigmoid) in more severe forms, and the inflammation is limited to the mucosa.

- What is the most characteristic differentiating clinical leading symptom of ulcerative colitis and Crohn disease in childhood?

Correct answer: The leading symptom of ulcerative colitis is bloody stool and diarrhea, whereas Crohn disease is characterized mainly by abdominal pain, weight loss, and, in children, growth retardation as an important warning sign.

- What is the induction treatment of childhood Crohn disease that is as effective as steroid treatment?

Correct answer: Exclusive enteral nutrition or, based on the latest data, a specific exclusion diet such as Crohn exclusion diet (CDED).

- Which drug group provides the maintenance therapy of ulcerative colitis and is also the main tool for prevention of colorectal carcinoma with long-term use?

Correct answer: 5-aminosalicylates, which are practically ineffective in Crohn disease.

- In therapy-resistant cases not responding to conservative treatment, what surgical solution is considered in the two diseases?

Correct answer: In Crohn disease: limited bowel resection or stricturoplasty, with special attention to avoiding short bowel syndrome due to extensive small-bowel resection. In ulcerative colitis: colectomy, followed by creation of a J-pouch from the small intestine.

52. Alarming signs of abdominal disorders (Dr. Péter Krivácsy)

- Acute abdominal pain in childhood can range from a benign condition to an urgent surgical indication; severe “red flag” conditions such as appendicitis, intussusception, volvulus, incarcerated hernia, and peritonitis must be ruled out.

- Bilious vomiting or prolonged, persistent vomiting, persistent fever, poor general condition, severe dehydration, or signs of shock/sepsis (tachycardia, poor perfusion) are in themselves alarming and require immediate evaluation.

- Bloody or mucous stool may suggest intussusception or bacterial infection, but in infants a common cause is allergic colitis.

Important pediatric conditions in the differential diagnosis of acute abdomen and their common symptoms:

- Appendicitis: initial peri-umbilical pain, later localized to the right lower quadrant; McBurney point is tender, and coughing, movement, or deep inspiration worsen the pain.

- Intussusception: should be considered between 2 months and 6 years of age, with a peak at 5–9 months; intermittent colicky abdominal pain with completely symptom-free intervals, characteristic “currant jelly”-like bloody stool, vomiting.
- Volvulus: occurs in early infancy with feeding difficulties, bilious vomiting, abdominal distension, poor general condition; abdominal examination may be deceptively negative, but it is a surgical emergency.
- Testicular torsion: abdominal pain may be misleading, therefore in boys with abdominal complaints testicular examination is mandatory; it is time-critical and requires immediate surgical management.
- Ovarian torsion: pain in the lower quadrant on the same side; ultrasound is important in diagnosis; it is a time-critical condition requiring immediate surgical management.
- Peritonitis: severe diffuse abdominal pain with guarding, vomiting, fever, tachycardia; should always be considered a serious condition.
- Ileus: may be mechanical or paralytic; symptoms are dominated by abdominal distension, vomiting, most often bilious vomiting, poor general condition, hypovolemia, and signs of poor perfusion. It is a severe, life-threatening condition. In a previously operated abdomen, mechanical ileus must always be considered.

53. Enuresis. Polyuria and polydipsia (Dr. György Reusz)

- Definition of enuresis: recurrent involuntary urination after 5 years of age.
- Definition of polyuria: abnormally increased urine output.
- Definition of polydipsia: abnormally increased fluid intake.
- Two main diagnoses that must be excluded in the background of polyuria and polydipsia, and which require treatment: diabetes mellitus, diabetes insipidus.

54. Edema (Dr. Gábor Szarvas)

- Definition of edema.
- Typical diseases or situations in which it may develop.
- Treatment options, e.g. causal treatment, fluid restriction, diuretic therapy, CRRT, albumin therapy.

55. Acid-base homeostasis, treatment of acid-base balance disorders (Dr. Lilla Ádám, Dr. Mihály Bednárík, Dr. Csaba Lódi)

- Definition of acidosis.
- Definition of alkalosis.
- Classification of acid-base disorders.

- Formula for calculating the anion gap.

56. Fever, management of fever, antipyretics (Dr. Tamás Pék)

Benefits of fever:

- Some immune responses accelerate at higher body temperature.
- Replication of certain pathogens with narrow temperature preferences is inhibited.

Disadvantages:

- Discomfort.
- Increased metabolic rate and oxygen consumption, with increased burden on the lungs, heart, and circulation. In a healthy child it is not dangerous, but it may be harmful in a child with shock, pulmonary disease, or cardiac disease.
- Fluid loss and electrolyte loss increase because of sweating.

Fever measurement:

- Rectal temperature is 0.5 C higher than axillary; axillary, oral, and ear measurements can be used; ear temperature measurement may be higher in inflammation and may be painful; forehead measurement is for orientation only.

Antipyretic drugs in childhood: paracetamol, ibuprofen, metamizole.

Fever of unknown origin (FUO):

- The definition is not uniform. In general, FUO is considered when fever has been present daily for at least 8 days (according to some authors, for 2-3 weeks), and the underlying cause cannot be clarified even after adequate outpatient and inpatient evaluation.
- Differential diagnosis: infection, rheumatologic disease, malignant disease.

57. Pertussis, influenza, RSV and COVID (Dr. Tamás Pék, Dr. Krisztina Kalocsai, Dr. Ferenc Balázs Farkas, Dr. András Kis)

Pertussis (Dr. Tamás Pék)

- Highly contagious.
- Incubation period: 4-21 days.
- Catarrhal phase - paroxysmal phase (coughing fits) - convalescent phase.
- In newborns and unvaccinated infants, apnea and malignant pertussis (pulmonary hypertension, circulatory failure) may develop.
- Treatment should be started as early as possible, but definitely within 21 days: azithromycin,

co-trimoxazole.

- Newborns and infants should be treated even if pertussis is only suspected.
- Newborns can be protected by active immunization of pregnant women (third trimester).

RSV (Dr. Ferenc Balázs Farkas)

- There is passive and maternal active immunization against RSV.
- The main risk groups are BPD, congenital heart disease, and prematurity.
- RSV therapy is primarily supportive; HFNC should be mentioned.

Influenza (Dr. Krisztina Kalocsai)

- Typical clinical symptoms of seasonal influenza.
- Factors predisposing to severe disease: at least 4 should be mentioned, including age under 5 years.
- Complications: at least 4 should be known, including direct viral pneumonia, ARDS, encephalitis, acute toxic-metabolic encephalopathy, myelitis, Guillain-Barré syndrome, myositis, rhabdomyolysis, myocarditis, pericarditis, and bacterial pneumococcal complications.
- Indications for antiviral treatment: at least 3 risk factors.
- Prevention: who is vaccination recommended for? Routine immunization for everyone over 6 months of age.

Non-examination minimum requirements:

33. Neuromuscular diseases in childhood

- SMA, Duchenne muscular dystrophy

58. General pediatric nephrology knowledge

- eGFR calculation in childhood: calculated with the Schwarz formula based on serum creatinine and height.
- Creatinine value depends on age, sex, and muscle mass.
- Definition of chronic renal failure: GFR <60 ml/1.73 m²/min for at least 3 months.
- Hematuria: >4-5 red blood cells per microscopic field.
- Hemolytic uremic syndrome: hemolytic (mechanical) anemia, thrombocytopenia, renal failure.
- Diagnosis of hypertension: values above the 95th percentile for age/height/sex measured on 3 different occasions, and/or similarly elevated values on 24-hour blood pressure monitoring.

- Most common cause of secondary hypertension: kidney disease.
- Antihypertensive drug classes that may be used: at least four groups, ACEI/ARB, calcium channel blocker, diuretic, beta-blocker.

Fluid therapy:

- Fluid requirements in premature infants, newborns, and childhood (calculation).
- Planning and calculation of fluid therapy in disease states (fluid loss, bolus).

Physical examination:

- Examination of the skin, pharynx, lymph nodes, heart and circulation, lungs and breathing, abdomen.

Failing to perform any life-saving intervention (or performing any life-threatening intervention) in a patient results in a failed exam.

Method and type of grading (Share of theoretical and practical examinations in the overall evaluation. Inclusion of the results in the end-of-term assessment. Possibilities of and conditions for offered grades.): (Share of theoretical and practical examinations in the overall evaluation, Inclusion of the results in the end-of-term assessment, Possibilities of and conditions for offered grades)

The final grade is determined by considering performance in both the practical and theoretical exams. The grades obtained in the bedside practical exam and the theoretical exam each contribute 50% to the overall exam grade; in cases where the average is inconclusive, the oral exam grade will be decisive. Student performance is evaluated using a five-point scale: Excellent (5), Good (4), Satisfactory (3), Pass (2), Fail (1).

For the OSCE, students receive a pass (based on the prevailing Study and Examination Regulations) or fail based on a pre-determined scoring system. Successful completion of the course requires a minimum grade of Pass (2) in both the bedside practical and theoretical exams, as well as a passing result in the OSCE (based on the prevailing Study and Examination Regulations).

See above.

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Artificial intelligence systems used in the teaching of the subject and the manner of their application

The use of AI-based tools for learning purposes is permitted; however, they may not be considered official sources of information or study materials, and their use is also prohibited during examinations.

Printed resources:

Type	Recommended
Author	Karen Marcdante, Robert M. Kliegman, Abigail M. Schuh
Title	Nelson Essentials of Pediatrics 9ed
Publisher	Elsevier
Year of publication	

Type	Recommended
Author	Robert C. Tasker, Carlo L. Acerini, Edward Holloway
Title	Oxford Handbook of Paediatrics
Publisher	Oxford University Press
Year of publication	2021

Signature of habilitated instructor (course coordinator) announcing the course:

Signature of the director of the host institution:

Date of submission:
