MINISTRY OF HEALTH OF UKRAINE

ODESA NATIONAL MEDICAL UNIVERSITY

Department of simulation medical technologies

CONFIRMED by
Vice-rector for scientific and pedagogical work

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September 1, 2023

WORKING PROGRAM OF THE ACADEMIC DISCIPLINE «SIMULATION TRAINING BY DIRECTIONS FAMILY MEDICINE, INTERNAL DISEASES, PEDIATRIC»

Level of higher education: second (master 's degree)

Field of knowledge: 22 "Health care"

Specialty: 222 "Medicine"

Educational and professional program: Medicine

2023

The working program is compiled on the basis of the educational and professional program "Medicine" for the training of specialists of the second (master 's degree) level of higher education in the specialty 222 "Medicine" of the field of knowledge 22 "Health care", approved by the Academic Council of ONMedU (protocol No. 8 of 29.06.2023).

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The working program was approved at the meeting of the department of simulation medical technologies
Protocol No. 1 of 28.08.2023

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Revised and approved at the meeting of the department of simulation medical technologies
Protocol No .__dated __/__/20__ .

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Revised and approved at the meeting of the department of simulation medical technologies
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1. Description of the educational discipline:

Name of indicators	Field of knowledge, specialty, specialization, level of higher education	Characteristics of the academic discipline
The total number of: Credits of ECTS: 3 Hours: 90	Field of knowledge 22 "Health care" Specialty 222 "Medicine" Level of higher education second (master's degree)	*Full-time (day) education — elective discipline*
		Course: 4
		Semesters VII — VIII
		Lectures (0 hours)
		Seminars (0 hours)
		Practical classes (30 hours)
		Laboratories (0 hours)
		Individual work (60 hours)
		including individual tasks (0 hours)
		Final control form — test

2. The aim and tasks of the academic discipline, competencies, program learning outcomes

Aim: formation and improvement of practical skills in providing emergency aid and performing medical manipulations during the development of the most common emergency conditions in adults and children.

Task:

1 Formation and improvement of the ability to diagnose and draw up a treatment plan for the most frequent emergency conditions encountered in the practice of doctors in the departments of internal medicine, pediatrics and surgery.

2 Improving the ability to apply diagnostic methods that help in decision-making regarding the management and treatment of the most common emergency conditions encountered in the practice of internal medicine, pediatrics, and surgical specialists.

3 Improving the ability to make decisions about the tactics of managing patients in the treatment of the most common emergency conditions found in inpatient departments of internal medicine, pediatrics and surgical profile, based on the principles of evidence-based medicine.

4 Mastery of knowledge about the main classes of drugs used in the clinic of internal medicine, pediatrics and surgery, formation of the ability to make decisions about the tactics of managing patients with the most frequent conditions found in hospitals of departments of internal medicine, pediatrics and surgical profile, based on the relevant clinical and pharmacological principles

The process of studying the discipline is aimed at forming elements of the following **competencies:**

- **General (GC):**

GC1. Ability to abstract thinking, analysis and synthesis
GC2. Ability to learn and master modern knowledge
GC3. Ability to apply knowledge in practical situations
GC4. Knowledge and understanding of the subject area and understanding of professional activity
GC5. Ability to adapt and act in a new situation
GC6. Ability to make informed decisions
GC7. Ability to work in a team
GC8. Ability to interpersonal interaction

GC12. Determination and persistence in relation to assigned tasks and assumed responsibilities
GC16. The ability to evaluate and ensure the quality of the work performed

- **Special (SC):**

SC1. Ability to collect medical information about the patient and analyze clinical data
SC2. Ability to determine the necessary list of laboratory and instrumental studies and evaluate their results
SC3. Ability to establish a preliminary and clinical diagnosis of the disease
SC7. Ability to diagnose emergency conditions
SC8. Ability to determine tactics and provide emergency medical care
SC10. Ability to perform medical manipulations
SC11. Ability to solve medical problems in new or unfamiliar environments in the presence of incomplete or limited information, taking into account aspects of social and ethical responsibility
SC24. Adherence to ethical principles when working with patients and laboratory animals

Program learning outcomes (PLO):

PLO1. Have thorough knowledge of the structure of professional activity. To be able to carry out professional activities that require updating and integration of knowledge. To be responsible for professional development, the ability for further professional training with a high level of autonomy
PLO4. Identify and identify leading clinical symptoms and syndromes (according to list 1); according to standard methods, using preliminary data of the patient's history, data of the patient's examination, knowledge about the person, his organs and systems, establish a preliminary clinical diagnosis of the disease (according to list 2)
PLO5. Collect complaints, history of life and diseases, assess the psychomotor and physical development of the patient, the state of organs and systems of the body, based on the results of laboratory and instrumental studies, evaluate information about the diagnosis (according to list 4), taking into account the age of the patient
PLO6. To establish a final clinical diagnosis by making a reasoned decision and analyzing the received subjective and objective data of clinical, additional examination, carrying out differential diagnosis, observing the relevant ethical and legal norms, under the control of the managing physician in the conditions of the health care institution (according to the list 2)
PLO7. Assign and analyze additional (mandatory and optional) examination methods (laboratory, functional and/or instrumental) (according to list 4) of patients with diseases of organs and body systems for differential diagnosis of diseases (according to list 2)
PLO8. Determine the main clinical syndrome or symptom that determines the severity of the victim's condition (according to list 3) by making a reasoned decision about the person's condition under any circumstances (in the conditions of a health care facility, outside its borders), including in conditions of emergency and hostilities, in field conditions, in conditions of lack of information and limited time
PLO9. Determine the nature and principles of treatment (conservative, operative) of patients with diseases (according to list 2), taking into account the patient's age, in the conditions of a health care institution, outside its borders and at the stages of medical evacuation, including in field conditions, on the basis of a preliminary clinical diagnosis, observing the relevant ethical and legal norms, by making a reasoned decision according to existing algorithms and standard schemes, in case of the need to expand the standard scheme, be able to substantiate personalized recommendations under the control of the head physician in the conditions of a medical institution
PLO14. Determine tactics and provide emergency medical care in emergency situations (according to list 3) in limited time conditions in accordance with existing clinical protocols and standards of treatment
PLO15. To organize the provision of medical aid and medical evacuation measures to the population and military personnel in emergency situations and hostilities, including in field conditions

PLO17. Perform medical manipulations (according to list 5) in the conditions of a medical institution, at home or at work on the basis of a previous clinical diagnosis and/or indicators of the patient's condition by making a reasoned decision, observing the relevant ethical and legal norms

As a result of studying the academic discipline, the student of higher education must:

To know:

- Anatomical structure of organs and systems in adults and children of different ages
- Indications and contraindications, complications, methodology, algorithm and technique of cardiopulmonary resuscitation in adults and children of various ages
- Know the methods of general examination. Concepts of palpation, percussion and auscultation. Concept of ECG
- Pathological changes in organs and systems in adults and children of different ages
- Physiological features of blood circulation and breathing in adults and children of different ages
- Pathogenesis of brain cell hypoxia
- Pharmacokinetics, pharmacodynamics and side effects of drugs used in emergency care in adults and children of various ages
- Principles of medical ethics
- Concepts, indications, contraindications, technique , algorithm and complications of manipulations:
    1. body temperature measurement
    2. restoration of airway patency
    3. basic cardiopulmonary resuscitation
    4. defibrillation using a manual automatic defibrillator-cardioverter
    5. registration of a standard ECG in 12 leads
    6. temporary stoppage of external bleeding
    7. primary surgical treatment of the wound, bandaging, removal of skin sutures, in particular in field conditions
    8. applying a bandage, incl. in field conditions
    9. installation of nasogastric and orogastric probes
    10. transport immobilization
    11. administration of medicinal substances (intravenous jet and drip, intraosseous), in particular in field conditions
    12. provision of peripheral venous and intraosseous access
    13. blood pressure measurement
    14. bladder catheterization with a soft probe
    15. pleural puncture
    16. Larray's pericardial puncture
    17. laparocentesis
    18. Cricothyreotomy
    19. Heimlich maneuver
    20. pulse oximetry
    21. assessment of pulse on peripheral arteries
    22. auscultation of the heart and blood vessels
    23. percussion and auscultation of the lungs
    24. palpation of the abdomen

Be able to:

- Orientate yourself in the anatomical structure of organs and systems in adults and children of different ages
- Name the indications and contraindications, complications, methodology, algorithm and

technique of cardiopulmonary resuscitation in adults and children of different ages

- Be able to conduct a general examination (palpation, percussion, auscultation, blood pressure measurement, etc.). Be able to analyze ECG results
- Name pathological changes in human organs and systems
- Orientate yourself in the physiological features of blood circulation and breathing in adults and children of different ages
- Define hypoxia of brain cells
- Orientate yourself in dosages, pharmacokinetics, pharmacodynamics and side effects of drugs used in emergency care
- Determine the sequence of actions when providing emergency aid
- Perform the necessary manipulations
- Monitor the patient's condition after performing practical skills
- Provide psychological assistance to patients
- Solve deontological tasks related to professional activity
- Have professional communication skills

3. Content of the academic discipline

Topic 1. Simulation scenarios of the most common emergency conditions in the practice of a general practitioner — family medicine

Emergency aid for convulsions. Emergency care for anaphylaxis. Emergency care for diabetic coma. Emergency care for bronchial asthma.

Topic 2. Simulation scenarios of the most common emergency conditions in the practice of a pediatrician

Emergency care for respiratory distress syndrome. Emergency care for infectious diseases. Emergency aid for convulsions. Emergency care for anaphylaxis.

Topic 3. Simulation scenarios of the most common emergency conditions in the practice of a therapist

Emergency care for exacerbation of coronary heart disease. Emergency care for cerebrovascular accidents. Emergency care of hypertensive crysis.

Topic 4. Emergency first aid

Methods of temporary stopping of external bleeding. Concepts, indications, contraindications, technique, algorithm, complications direct pressure on the wound. Concepts, indications, contraindications, technique, algorithm, complications and wound tamponade. Concepts, indications, contraindications, technique, algorithm, complications of applying a tourniquet.

Topic 5. Final lesson

4. The structure of the academic discipline

Names of topics	Number of hours					
	Total	including				
		lectures	seminars	practical classes	laboratories	Individual work
Topic 1. Simulation scenarios of the most common emergency conditions in the practice of a general practitioner — family medicine	20	0	0	8	0	12

Topic 2. Simulation scenarios of the most common emergency conditions in the practice of a pediatrician	18	0	0	6	0	12
Topic 3. Simulation scenarios of the most common emergency conditions in the practice of a therapist	20	0	0	8	0	12
Topic 4. Emergency first aid	18	0	0	6	0	12
Topic 5. Final lesson	14	0	0	2	0	12
Total hours	**90**	**0**	**0**	**30**	**0**	**60**

5. Topics of lectures/ seminars/ practical classes / laboratories

5.1. Topics of lectures

Lectures are not provided.

5.2. Topics of seminar classes

Seminar classes are not provided.

5.3. Topics of practical classes

№	Topic	Hours
1.	Topic 1. Practical lesson 1. Simulation scenarios of the most common emergency conditions in the practice of a general practitioner — family medicine	2
2.	Topic 1. Practical lesson 2. Simulation scenarios of the most common emergency conditions in the practice of a general practitioner — family medicine	2
3.	Topic 1. Practical lesson 3. Simulation scenarios of the most common emergency conditions in the practice of a general practitioner — family medicine	2
4.	Topic 1. Practical lesson 4. Simulation scenarios of the most common emergency conditions in the practice of a general practitioner — family medicine	2
5.	Topic 2. Practical lesson 5. Simulation scenarios of the most common emergency conditions in the practice of a pediatrician	2
6.	Topic 2. Practical lesson 6. Simulation scenarios of the most common emergency conditions in the practice of a pediatrician	2
7.	Topic 2. Practical lesson 7. Simulation scenarios of the most common emergency conditions in the practice of a pediatrician	2
8.	Topic 3. Practical lesson 8. Simulation scenarios of the most common emergency conditions in the practice of a therapist	2
9.	Topic 3. Practical lesson 9.	2

	Simulation scenarios of the most common emergency conditions in the practice of a therapist	
10.	Topic 3. Practical lesson 10. Simulation scenarios of the most common emergency conditions in the practice of a therapist	2
11.	Topic 3. Practical lesson 11. Simulation scenarios of the most common emergency conditions in the practice of a therapist	2
12.	Topic 4. Practical lesson 12. Emergency first aid	2
13.	Topic 4. Practical lesson 13. Emergency first aid	2
14.	Topic 4. Practical lesson 14. Emergency first aid	2
15.	Topic 5. Practical lesson 15. Final lesson	2
	Total	**30**

5.4. Topics of laboratories

Laboratories are not provided.

6. Individual work of the student

№	Topic	Hours
1.	Topic 1. Emergency conditions in rheumatology	20
2.	Topic 2. Urgent cases of nephrology	20
3.	Topic 3. Preparation for practical classes	20
	Total	**60**

7. Teaching methods

Practical classes: conversation, role-playing, solving clinical situational problems, practicing and controlling practical skills on simulation models and mannequins (according to list 5), passing simulation scenarios, solving test tasks.

Individual work: individual work with the recommended basic and additional literature, electronic information resources, individual work with the bank of Step-2 test tasks, preparation for practical classes.

8. Forms of control and evaluation methods (including criteria for evaluating learning outcomes)

Ongoing control: oral survey, testing, assessment of performance of practical skills on simulation models and mannequins, assessment of communication skills during simulation scenarios, solution of situational clinical tasks, assessment of activity in class.

Final control: test.

Evaluation of the current educational activity in a practical lesson:

1. Evaluation of theoretical knowledge on the subject of the lesson:
- methods: survey, solving a situational clinical problem
- the maximum score is 5, the minimum score is 3, the unsatisfactory score is 2.
2. Evaluation of practical skills and manipulations on the subject of the lesson:

- methods: assessment of the correctness of the performance of practical skills
- the maximum score is 5, the minimum score is 3, the unsatisfactory score is 2.

3. Evaluation of work with a patient simulator on the subject of the lesson:
- methods: assessment of: a) communicative skills of communicating with a patient simulator; b) correctness of appointment and assessment of laboratory and instrumental studies; c) compliance with the differential diagnosis algorithm; d) substantiation of the clinical diagnosis; e) drawing up a treatment plan;
- the maximum score is 5, the minimum score is 3, the unsatisfactory score is 2.

The grade for one practical session is the arithmetic average of all components and can only have a whole value (5, 4, 3, 2), which is rounded according to the statistical method.

Criteria of ongoing assessment at the practical class

Rating	Evaluation criteria
Excellent "5"	The applicant takes an active part in the lesson; demonstrates deep knowledge, gives complete and detailed answers to questions. Thoroughly and comprehensively knows the content of theoretical issues, fluent in professional and scientific terminology. Thinks logically and constructs an answer, freely uses acquired theoretical knowledge when analyzing practical tasks. When solving a clinical problem, he correctly interprets the anamnesis data, the results of clinical, laboratory and instrumental studies, correctly answers all the questions and convincingly substantiates his point of view, can propose and justify an alternative version of the decision on individual issues. When solving a practical task according to the OSCE type, he correctly demonstrates the performance of practical skills on simulation models and mannequins, strictly adheres to the algorithm of their implementation
Good "4"	The acquirer participates in the class; knows the material well; demonstrates the necessary knowledge, but answers the questions with some errors. He knows the content of theoretical issues deeply and comprehensively, and has professional and scientific terminology. Thinks logically and constructs an answer, uses acquired theoretical knowledge when analyzing practical tasks. But when teaching some questions, there is not enough depth and argumentation, it makes insignificant mistakes, which are eliminated by the student himself when the teacher points them out. When solving a clinical problem, minor errors or inaccuracies are assumed in the interpretation of anamnesis data, results of clinical, laboratory and instrumental studies, he answers all the questions without significant errors, fully substantiates his point of view, but proposals for an alternative option cause difficulties. When solving a practical task according to the OSCE type, minor errors in the algorithm and technique of performing skills on simulation models and mannequins are corrected at the instruction of the teacher
Satisfactory "3"	The acquirer sometimes participates in the activity; partially speaks and asks questions; makes mistakes when answering questions. Possesses a basic amount of theoretical knowledge, uses professional and scientific terminology inaccurately. Experiences significant difficulties in constructing an independent logical answer, in applying theoretical knowledge in the analysis of practical tasks. There are significant errors in the answers. When solving a clinical problem, he interprets the history data, the results of clinical, laboratory and instrumental studies with errors, does not know individual details, allows inaccuracies in the answers to questions, does not adequately justify his answers and interprets the wording, experiences difficulties in completing tasks and

	proposing alternative options. When solving a practical task according to the OSKE type, significant errors are assumed in the algorithm and technique of performing skills on simulation models and mannequins
Unsatisfactory "2"	The acquirer does not participate in the lesson, is only an observer; never speaks or asks questions, disinterested in learning the material; gives incorrect answers to questions. Has not mastered the basic amount of theoretical knowledge, shows a low level of mastery of professional and scientific terminology. Answers to questions are fragmentary, inconsistent, illogical, cannot apply theoretical knowledge when analyzing practical tasks. There are a significant number of gross errors in the answers. When solving a clinical problem, he cannot interpret the received history data, the results of clinical, laboratory and instrumental studies, answer the questions, or makes significant mistakes in the answers; could not justify his decisions or does it unconvincingly. It does not offer alternative options. When solving a practical task according to the OSCE type, gross errors and errors in the algorithm and technique of performing skills on simulation models and mannequins will not be demonstrated or assumed

Test is given to the applicant who completed all tasks of the work program of the academic discipline, took an active part in practical classes, completed and defended an individual assignment and has an average current grade of at least 3.0 and has no academic debt.

Test is carried out: at the last lesson before the beginning of the examination session — at ribbon system teaching, on to the last occupation — with a cyclical system of education. The test score is the arithmetic mean of all components on a traditional four-point scale and has a value that is rounded using the statistical method with two decimal places after the decimal point.

9. Distribution of points, obtained by the students

The obtained average score for the academic discipline for applicants who have successfully mastered the work program of the academic discipline is converted from a traditional four-point scale to points on a 200-point scale, as shown in the table:

Conversion table of a traditional to multi-point scale

National score for the discipline	The sum of scores for the discipline
Excellent ("5")	185 – 200
Good ("4")	151 – 184
Satisfactory ("3")	120 – 150
Unsatisfactory ("2")	Less than 120

Multi-point scale (200-point scale) characterizes the actual success rate of each applicant in mastering the educational component. The conversion of the traditional grade (average score for the academic discipline) into a 200-point grade is performed by the information and technical department of the University.

According to the obtained points on a 200-point scale, the achievements of the applicants are evaluated according to the ECTS rating scale. Further ranking according to the ECTS rating scale allows you to evaluate the achievements of students from the educational component who are studying in the same course of the same specialty, according to the points they received.

The ECTS scale is a relative-comparative rating, which establishes the applicant's belonging to the group of better or worse among the reference group of fellow students (faculty, specialty). An "A" grade on the ECTS scale cannot be equal to an "excellent" grade, a "B" grade to a "good" grade, etc. When converting from a multi-point scale, the limits of grades "A", "B",

"C", "D", "E" according to the ECTS scale do not coincide with the limits of grades "5", "4", "3" according to the traditional scale. Acquirers who have received grades of "FX" and "F" ("2") are not included in the list of ranked acquirers. The grade "FX" is awarded to students who have obtained the minimum number of points for the current learning activity, but who have not passed the final examination. A grade of "F" is given to students who have attended all classes in the discipline, but have not achieved a grade point average (3.00) for the current academic activity and are not admitted to the final examination.

Applicants who study in one course (one specialty), based on the number of points scored in the discipline, are ranked on the ECTS scale as follows:

Conversion of the traditional evaluation and ECTS scores

Score on the ECTS scale	Statistical indicator
A	The best 10% students
B	Next 25% students
C	Next 30% students
D	Next 25% students
E	Next 10% students

10. Methodological support

- Working program of the academic discipline
- Syllabus
- Methodological recommendations for the practical classes in the discipline
- Methodological recommendations for the individual work of students
- Simulation scenarios
- Mannequins and simulators

11. Questions for the final control

The list of practical skills that are learned during the study of the discipline (according to list 5):

1. body temperature measurement
2. restoration of airway patency
3. basic cardiopulmonary resuscitation
4. defibrillation using a manual automatic defibrillator-cardioverter
5. registration of a standard ECG in 12 leads
6. temporary stoppage of external bleeding
7. primary surgical treatment of the wound, bandaging, removal of skin sutures, in particular in field conditions
8. applying a bandage, incl. in field conditions
9. installation of nasogastric and orogastric probes
10. transport immobilization
11. administration of medicinal substances (intravenous jet and drip, intraosseous), in particular in field conditions
12. provision of peripheral venous and intraosseous access
13. blood pressure measurement
14. bladder catheterization with a soft probe
15. pleural puncture
16. Larray's pericardial puncture
17. laparocentesis

18. Cricothyreotomy
19. Heimlich maneuver
20. pulse oximetry
21. assessment of pulse on peripheral arteries
22. auscultation of the heart and blood vessels
23. percussion and auscultation of the lungs
24. palpation of the abdomen

12. Recommended literature

Main:

1. Emergency and urgent medical care. In VI Vol. IV. Clinical routes (protocols) of the patient during the provision of emergency medical care at the pre-hospital stage: textbook for students. Higher Education Closed / Krylyuk V.O. etc. - Kyiv: Ozhiva. - 2020. - 300 p.
2. Emergency and urgent medical care: Study guide for students of higher educational institutions of the Ministry of Health of Ukraine. Recommended by the State Institution "Central Methodical Cabinet for Higher Medical Education of the Ministry of Health of Ukraine" / Shkurupii D.A. (ed.). - 2nd ed.— 2018. — 240 p., black and white, black and white.
3. Emergencies in the practice of a therapist and family doctor / under the editorship Yepishyna A.V. — ISBN: 978-966-673-122-0. Ukrmedknyga 2019p. 380 pages
4. Emergencies in pediatrics: study guide (University I-II year) / R.I. Potsyurko, L.S. Leskiv, M.M. Monastyrska and others; under the editorship R.I. Rat — 6th ed., revised. and added Year: 2017, Number of pages: 200 + 2 color incl., ISBN: 978-617-505-557-1.
5. Pediatric Emergency Medicine, Second edition, illustrated clinical cases, © 2019 by Taylor & Francis Group, LLC / International Standard Book Number-13: 978-1-4822-3029-1 (Paperback) 978-1-138-34649-9 (Hardback). 436 pages.
6. Mechanical Ventilation in Emergency Medicine. by Susan R. Wilcox & Ani Aydin & Evie G. Marcolini. ISBN 978-3-319-98409-4 ISBN 978-3-319-98410-0 (eBook). https://doi.org/10.1007/978-3-319-98410-0/2019 . 122 pages.
7. Acute Medicine: A Practical Guide to the Management of Medical Emergencies, 5th Edition / David C. Sprigings (Editor), John B. Chambers (Editor) - ISBN: 978-1-118-64428-7. July 2017 Wiley-Blackwell, 784 Pages.

Additional:

1. The Complete First Aid Pocket Guide. by John Furst / ISBN 9781507208892 - Adams Media, 2018. 190 pages.
2. Manual of emergency medicine / editor, G. Richard Braen. — 6th ed. ISBN: 978-1-60831-249-8. May 23, 2011. 704 pages.

13. Electronic information resources

1. http://moz.gov.ua — Ministry of Health of Ukraine
2. https://www.cprguidelines.eu/ — European Resuscitation Council
3. https://www.c-tecc.org/our-work/guidance — Committee on Tactical Emergency Relief
4. https://zakon.rada.gov.ua/laws/show/z0356-22#n42 — Order of the Ministry of Health of Ukraine No. 441 dated 09.03.2022 "On approval of procedures for providing pre-medical assistance to persons in emergency situations"
5. http://www.nbuv.gov.ua/ — National Library of Ukraine
6. https://gmka.org/uk/category/dlya-medykiv/nevidkladna-hirugiya/ — Global Alliance for Medical Knowledge
7. www.ama-assn.org — American Medical Association

8. www.who.int — World Health Organization
9. www.dec.gov.ua/mtd/home/ — State Expert Center of the Ministry of Health of Ukraine
10. http://bma.org.uk — British Medical Association
11. www.gmc-uk.org — General Medical Council (GMC)
12. www.bundesaerztekammer.de — German Medical Association
13. https://emergencymanual.stanford.edu/downloads/ — Stanford Handbook of Emergency Medicine
14. https://www.futurelearn.com/courses/critical-care — University of Glasgow Handbook of Emergency Medicine
15. https://www.medscape.org/viewarticle/964673 — Convulsions after a stroke
16. https://www.medscape.org/viewarticle/964201 — Aspirin for primary prevention of CVD