MINISTRY OF THE HEALTH CARE OF UKRAINE

Danylo Halytsky Lviv National Medical University

APPROVED
First vice - rector
of scientific and pedagogical work
prof. M.R. Gzhegotsky
_____
_01._____09._____2021 year

FIRST AID
WITH OWNED MEDICAL PRACTICE

(name of the discipline)

WORK PROGRAM
of educational discipline

preparation of specialists of the second (master's) level of higher education
(name of higher education level)
Knowledge 22 "Healthcare"
(cipher and name of field of knowledge)
specialty 226 "Pharmacy"
(code and name of specialty)
specialization _____
(name of specialization, if present)

2021 year

DEVELOPED AND INTRODUCED: Danylo Halytsky Lviv National Medical University

(full name of a higher educational establishment)

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Discussed and approved at the methodical meeting of the Department of General Surgery
Minutes No. _8___ from "_13__" _____04_____ 2021 year
Head of the department prof. Andryushchenko V.P.

Approved by the profile methodical commission on surgical disciplines
Minutes No. ___11_ from "_15__" _____04_____ 2021 year
Head of the profile methodical commission -_prof. Andryushchenko V.P._____

INTRODUCTION

The program of studying the discipline "First medical aid with familiarization medical practice" is compiled

in accordance with the Standard of Higher Education of Ukraine (hereinafter - the Standard) of the second (master's) level
(name of higher education level)
Knowledge 22 "Healthcare"
(cipher and name of field of knowledge)
specialty 226 "Pharmacy"
(code and name of specialty)
specialization _____
(code and name of specialization)
Program in Pharmacy Master's Degree
(the name of the educational program)

Description of the discipline (abstract). Among the wide range of educational disciplines envisaged for master's degree in pharmacy, the subject "First medical aid with familiarization medical practice" allows you to master the knowledge, skills and practical skills that enable a specialist to quickly and accurately navigate in urgent situations, to avoid fatal mistakes or loss of time and to take immediate steps that will save a person's life and / or will provide a good basis for her successful further treatment in a hospital. Mastering the discipline is based on the knowledge gained by students in the process of studying anatomy, biology, physiology and other basic subjects.

When mastering the discipline "The first pre-medical aid with familiarization medical practice" it is rational to introduce into the educational process the modern world developments and standards of the first medical aid with the wide use of means of integrated practical-oriented training.

The project of the study program "The first pre-medical aid with familiarization medical practice" was prepared in accordance with the requirements of the Constitution of Ukraine, the Laws of Ukraine "On Education", "On Higher Education", "On Scientific and Scientific-Technical Activity", "On Information"; normative acts of the Cabinet of Ministers of Ukraine; orders of the Ministry of Education and Science and the Ministry of Health of Ukraine and other current legislation regulating the organization of the educational process and the procedure for training specialists in the higher medical (pharmaceutical) educational institutions of the Ministry of Health of Ukraine, in particular, the Letter from the State Institution "Central Methodical Cabinet for Higher Medical Education of the Ministry of Health of Ukraine" dated March 10, No. 23-01-9 / 87; Letter of the Ministry of Health of Ukraine dated 07/26/2016 №23-01-9 / 268; Order of the Ministry of Education and Science of Ukraine dated October 16, 2009, №943 "On introduction of the European Credit Transfer System in higher educational institutions of Ukraine"; Resolution of the Cabinet of Ministers of Ukraine dated April 29, 2015 №266 "On approval of the list of branches of knowledge and specialties under which the training of higher education graduates is carried out".

The subject of studying the discipline is the organization of the provision of the first pre-care assistance in urgent situations that arise in production, in everyday life, during road accidents, catastrophes, technogenic accidents, in military situations and in acute therapeutic and surgical diseases and terminal conditions.

Interdisciplinary connections: normal anatomy, normal physiology, histology, pathological anatomy, pathological physiology, pharmacology

1. Purpose and tasks of the discipline

1.1. The purpose of the teaching of the discipline "The first pre-medical aid with familiarization medical practice" is the mastering of the basic theoretical principles of the first pre-care aid, the acquisition of practical skills of provision of urgent medical care to victims at the scene and during transportation to a medical institution.

1.2. The main tasks of studying the discipline "The first pre-medical aid with familiarization medical practice" is the acquisition of knowledge, skills and abilities to ensure full and timely conduction of cardiopulmonary resuscitation, stopping of bleeding, dressing of dressings and stationery and improvised tires for transport immobilization of the victim in order to preserve they have life.

1.3 **Competence and learning outcomes**, the formation of which is facilitated by discipline (the relationship with the normative content of the training of applicants for higher education, formulated in terms of the results of training in the Standard).

According to the requirements of the standard, discipline ensures student acquisition **competencies**:

-integral: the ability to solve complex problems and practical problems in the field of professional activity 22 "Health", which implies application of certain theoretical knowledge, skills, practical skills and methods of the corresponding professional orientation;
-general: the ability to apply knowledge in real-world situations; conducting research at the appropriate level; to adaptation and action in new situations, activities in autonomous and command modes, assessment and quality assurance of the work performed; communication in the state language, both orally and in writing, to the search, processing and analysis of information from different sources; Identify and solve problems; making informed decisions, forming basic ideas that promote the development of a common culture the socialization of the individual, ethical values, important stages of national history, the ability to understand the causal relationships of the development of society with the use of them in professional and social activities on the basis; the provisions of fundamental sciences, as well as activities in accordance with the basic safe and ethical principles (motives).
-special (professional, substantive): first aid in case of various types of damage to peace and war time, emergency conditions and accidents; basic procedures for the care of patients; methods of transporting and transporting victims; the principles of organizational and tactical principles of the medical service's work in emergency situations and evacuation stages of victims from the scene; Providing qualified assistance in: breathing violations, burning and frostbite, drowning and other forms of mechanical asphyxiation, fainting, shock, general cooling of the body, heat and sunshine, poisoning with carbon monoxide and other poisons, electric shock, food poisoning, etc.

Detail of competencies according to the descriptors of the NRC in the form of "Matrix of competencies".

Matrix of competencies

№	Competence	Know-ledge	Ability	Communi-cation	Autonomy and responsibility
Integral competence		the ability to solve complex specialized tasks and practical problems in the field of professional activity 22 "Health", which implies application of certain theoretical knowledge, practical skills and methods of the corresponding professional direction.			
General competencies					
ЗК.1.	Ability to apply knowledge in practical situations		+	+	+
ЗК.2.	Ability to conduct research at the appropriate level		+	+	+
ЗК.3.	Ability to adapt and act in a new situation		+	+	+
ЗК.4.	Ability to work both autonomously and in a team		+	+	+
ЗК.5.	Ability to assess and ensure the quality of work performed		+	+	+
ЗК.6.	Ability to communicate in the state language both verbally and in writing		+	+	+
ЗК.7.	Ability to search, process and analyze information from various sources	+	+	+	+
ЗК.8.	Ability to identify, put and solve problems		+	+	+

ЗК.9.	Ability to make informed decisions		+	+	+
ЗК.10.	Basic ideas about the fundamentals of medical knowledge that contribute to the development of a common culture and socialization of the individual, propensity for ethical values, knowledge of national history, understanding of causal relationships of development of society and their ability to use in professional and social activities	+	+	+	+
ЗК.11.	Basic knowledge of fundamental sciences, to the extent necessary for the development of general-professional disciplines	+	+	+	+
ЗК.12.	The ability to be critical and self-critical		+	+	+
ЗК.13.	Ability to act on the basis of ethical considerations (motives)		+	+	+
ЗК.14.	Skills to perform safe activities	+	+	+	+
Special (professional) competencies					
СК.1.	Provision of the first medical aid for various types of injuries	+	+	+	+
СК.2.	Provision of first medical aid at urgent conditions	+	+	+	+
СК.3.	Providing first aid in case of accidents	+	+	+	+
СК.4.	Basic procedures for the care of patients	+	+	+	+
СК.5.	The main methods of transporting and transporting the victims	+	+	+	+
СК.6.	Basic principles of the organization and tactics of the work of the medical service in emergency situations and at the stages of evacuation of victims from the scene of the incident	+	+	+	+
СК.7.	Providing medical assistance in case of breathing disturbance	+	+	+	+
СК.8.	Provision of medical aid at the stopping of cardiac activity	+	+	+	+
СК.9.	Providing medical care for burns	+	+	+	+

СК.10.	Providing medical assistance during frostbite	+	+	+	+
СК.11.	Providing medical assistance for drowning and other types of mechanical asphyxiation	+	+	+	+
СК.12.	Provision of medical aid with fainting	+	+	+	+
СК.13.	Providing medical care for various types of shock	+	+	+	+
СК.14.	Provision of medical care in case of general overcooling	+	+	+	+
СК.15.	Provision of medical aid in thermal and solar stroke	+	+	+	+
СК.16.	Providing medical assistance for poisoning with carbon monoxide and other poisons	+	+	+	+
СК.17.	Provision of medical aid in case of electric shock and lightning	+	+	+	+

Learning outcomes:

Integrative final programmatic learning outcomes, the formation of which is facilitated by discipline: apply knowledge in practical situations; to carry out experimental studies and to demonstrate skills in professional subjects, to adapt to new situations, to work effectively both autonomously and within the team; Responsible to carry out work with the achievement of the goal; use information and communication technology for solving various research and professional tasks; to search information in various sources for solving the tasks of a specialty, to make informed decisions with the assessment of their consequences, to demonstrate the ability to public, business and scientific communications; adhere to the code of professional ethics, moral norms and values, rules of etiquette, understand the basic principles of labor protection and safety of life in the field of professional activity; to possess methods of providing the first medical aid in case of various types of injuries, principles of provision of first medical aid in urgent states and accidents; in particular, when breathing is disturbed; cardiovascular activity and other vital functions of the body, to master the principles of providing medical care for burns; frostbite, drowning and other forms of mechanical asphyxiation; with different types of shock; general overcooling, thermal and solar stroke, poisoning with carbon monoxide and other poisons, to have the principles of providing medical care in case of electric shock and lightning.
Learning outcomes for discipline: mastering the knowledge, skills and abilities to ensure full and timely conduction of cardiopulmonary resuscitation, stopping bleeding, bandaging and transport immobilization for victims in order to preserve their lives.

2. Information volume of educational discipline
90 hours of ECTS credits are allocated to studying the discipline.
If the program is structured in the module: -

3. **Structure of the discipline**

The names of content modules and topics	**amount of hours**			
	full-time education		**correspondence form**	
	total	including	total	including

		Lec.	Pr.	Lab.	ind.	indep.		Lec.	Pr.	lab.	ind.	indep.
1	2	3	4	5	6	7	8	9	10	11	12	13
Theme 1. Basic principles of general and special care for patients with a surgical and traumatic profile. The concept of hypurgy			2									
Theme 2. Aseptic, antiseptic. Principles of asepsis and antiseptics when providing the first pre-care aid.			2									
Topic 3. Desmurgy. Kinds of bandages. Rules and techniques for applying bandages.			2									
Topic 4. Desmurgy. Bandages on separate parts of the body: on the head, on the chest, on the abdomen, on the upper and lower limbs.			2									
Topic 5. Terminal states. Signs and diagnosis of clinical, biological and social death. Principles and algorithm of provision of the first pre-care aid. Shock and shock states.			2									
Theme 6. Cardio-pulmonary resuscitation. General rules, technique of execution. Criteria for effectiveness and error in CPR.			2									
Theme 7. Bleeding, definition, classification. Methods of temporary stopping of bleeding at the stage of first pre-care. The notion of a final stop bleeding. Errors in stopping bleeding.			2									
Theme 8. Hemorrhagic shock. First kindergarten help. Its features in internal bleeding. The concept of hemotransfusion.			2									

Theme 9. Wounds, classification. The first pre-nursing care for different types of wounds.			2									
Theme 10. Dirty wounds. Features of the first pre-care aid. Prevention of specific surgical infection (tetanus, rabies, gas gangrene).			2									
Topic 11. Injury, injuries. Classification of injuries. Organization of provision of first medical aid for various types of injuries. Traumatic shock. Trauma of soft tissues. Crash syndrome.			2									
Theme 12. Rules and methods of transport immobilization, as a component of the first pre-medical aid in case of injuries. Features of the care of the injured.			2									
Topic 13. Fractures and dislocations. Diagnosis. First kindergarten help.			2									
Theme 14. Injury of head and spine. Assessment of the severity of head injuries. Spinal shock. Principles of provision first medical aid for head and spine injuries. Errors in first aid.			2									
Theme 15. Injury of the chest, abdomen and pelvis. Principles of provision of the first pre-nursing care for injury of the chest, abdomen and pelvis. Errors in first aid.			2									
Theme 16. Burns, frostbite, electric trauma. Chemical and radiation burns. Features of the diagnosis of the first pre-care aid.			2									
Topic 17. Poisoning, species. Bites of poisonous animals and insects. The			2									

first pre-nursing care at poisoning.												
Theme 18. Types of disturbances of consciousness. Shock, collapse, coma. The first pre-nursing care for insects of obscure etiology. Anaphylactic shock.			2									
Theme 19. Acute diseases of the organs of the cardiovascular and respiratory systems. Principles of diagnosis and provision of the first precursor care for myocardial infarction, arrhythmias, hypertensive crisis, bronchial asthma and pulmonary edema.			2									
Theme 20. Acute surgical diseases combined with the term "acute abdomen". Principles of diagnosis and provision of first medical care. Typical mistakes in the pre-hospital phase.			2									
Total hours	90	10	40			40						

4. Topics of lectures

№	Title of topic	amount of hours
1	Introductory lecture. The value of the first pre-care aid. General principles and logic of provision of the first medical aid during peacetime, military time and mass injuries. Principles of medical sorting. Diagnostic and therapeutic algorithms. Typical mistakes.	2
2	Basics of resuscitation. Terminal states. Cardiopulmonary resuscitation.	2
3	The first pre-nursing care for injuries and injuries. Urgent actions on the site of injury. Rules for the evacuation of the victims. Methods of immobilization, transportation. Typical mistakes.	2
4	Bleeding: classification, clinic, diagnosis, methods and means of temporary and final bleeding.	2
5	The first pre-nursing care for acute surgical and therapeutic diseases. Typical mistakes.	2

5. Topics of seminars

№	Title of topic	amount of hours
1		2
2		2

6. Topics of practical classes

№	Title of topic	amount of hours
1	Basic principles of general and special care for patients with a surgical and traumatic profile. The concept of hypurgy.	2
2	Aseptic, antiseptic. Principles of asepsis and antiseptics when providing the first pre-care aid.	2
3	Desmurgy. Kinds of bandages. Rules and techniques for applying bandages.	2
4	Desmurgy. Bandages on separate parts of the body: on the head, on the chest, on the abdomen, on the upper and lower limbs.	2
5	Terminal states. Signs and diagnosis of clinical, biological and social death. Principles and algorithm of provision of the first pre-care aid. Shock and shock states.	2
6	Cardio-pulmonary resuscitation. General rules, technique of execution. Criteria for effectiveness and error in CPR.	2
7	Bleeding, definition, classification. Methods of temporary stopping of bleeding at the stage of first pre-care. The notion of a final stop bleeding. Errors in stopping bleeding.	2
8	Hemorrhagic shock. First kindergarten help. Its features in internal bleeding. The concept of hemotransfusion.	2
9	Wounds, classification. The first pre-nursing care for different types of wounds.	2
10	Dirty wounds. Features of the first pre-care aid. Prevention of specific surgical infection (tetanus, rabies, gas gangrene).	2
11	Injury, injuries. Classification of injuries. Organization of provision of first medical aid for various types of injuries. Traumatic shock. Trauma of soft tissues. Crash syndrome.	2
12	Rules and methods of transport immobilization, as a component of the first pre-medical aid in case of injuries. Features of the care of the injured.	2
13	Fractures and dislocations. Diagnosis. First kindergarten help.	2

14	Injury of head and spine. Assessment of the severity of head injuries. Spinal shock. Principles of provision first medical aid for head and spine injuries. Errors in first aid.	2
15	Injury of the chest, abdomen and pelvis. Principles of provision of the first pre-nursing care for injury of the chest, abdomen and pelvis. Errors in first aid.	2
16	Burns, frostbite, electric trauma. Chemical and radiation burns. Features of the diagnosis of the first pre-care aid.	2
17	Poisoning, species. Bites of poisonous animals and insects. The first pre-nursing care at poisoning.	2
18	Types of disturbances of consciousness. Shock, collapse, coma. The first pre-nursing care for insects of obscure etiology. Anaphylactic shock.	2
19	Acute diseases of the organs of the cardiovascular and respiratory systems. Principles of diagnosis and provision of the first precursor care for myocardial infarction, arrhythmias, hypertensive crisis, bronchial asthma and pulmonary edema.	2
20	Acute surgical diseases combined with the term "acute stomach". Principles of diagnosis and provision of first medical care. Typical mistakes in the pre-hospital phase.	2

7. Topics of laboratory lessons

№	**Title of topic**	**amount of hours**
1		
2		

8. Independent work

№	**Title of topic**	**amount of hours**
1	Emergency conditions in obstetrics. Anatomical and physiological features of pregnant women. Pregnancy. Bleeding, preeclampsia, eclampsia, uterine rupture, placental abnormality, umbilical cord failure, abortion, ectopic pregnancy, trauma - recognition, first aid. Transportation of pregnant women. Childbirth. Neonatal resuscitation. Physiology of genera. Forerunner families. Stages and mechanism of labor. Accepting normal unauthorized birth: material support, umbilical cord and baby processing.	8
2	Emergency conditions in children. Anatomical and physiological characteristics of children. Respiratory tract obstruction, asthma, epiglottitis,	8

	cerebellar, bronchitis, febrile seizures, hyperthermia - diagnosis and first aid. Features of resuscitation of children.	
3	Infectious diseases. Principles of providing first medical care for infectious diseases (meningitis, botulism, cholera, diphtheria, AIDS): diagnostic signs, hypodermic care - diarrhea, toxic shock, hyperthermia, convulsive syndrome. Principles of hygiene, personal protection and safety.	8
4	Acute mental disorders and crisis conditions. Psychosis, mood disorder, manic-depressive psychosis, anxiety states. Emergency response types. General principles and methods of behavior with patients with acute mental disorders. Principles of immobilization of patients and first aid.	8
5	Ecogenic factors, catastrophes and natural disasters: definitions, causes, epidemiology of urgent states. Physiology of thermoregulation. Hypothermia, hyperthermia, sunshine, heat stroke, drowning in fresh and salty water, general cooling, freezing, lightning damage, intoxication with insect bites, snakes, spiders, marine invertebrates - clinical manifestations and first medical care.	8

9. Individual tasks

When studying the discipline it is envisaged to perform individual tasks in the form of preparation of reviews of scientific literature and abstracts with in-depth study of topical topics of choice, the creation of visual means of study, speeches at conferences, conducting individual scientific research in student's scientific circles, participation in all-Ukrainian Olympiads in discipline and nationwide competition from the practical skills of providing emergency care. Creation of slides according to the thematic plan (aseptic, antiseptic, desmursion, temporary stop of bleeding, hemotransfusion).

10. Tasks for independent work

Preparation and protection of the educational presentation on the proposed topics:
1) Emergency and planned prevention of tetanus
2) Complications with local anesthesia: causes, clinic, emergency care, prevention
3) Modern means for transport immobilization
4) Modern methods of sterilization of surgical instruments
5) Treatment of gunshot wounds
6) The concept of local and general surgical infection, the principles of diagnosis and treatment

11. Methods of training

Visually: In studying the discipline "First pre-medical aid with familiarization medical practice" a set of methods is used: - methods of verbal transmission and auditory perception of educational information (lectures, conversations, narration, explanation, discussion), methods of visual transmission and visual perception of educational information (display and demonstration, slides, videos, studying literary and other sources of educational information, the use of visual means of teaching), methods of transferring educational information through practical, labor and tactical of its perception (training tasks on mannequins, exercise and creative exercises, computer simulation, review of thematic patients).
Practical methods: Cure of patients, research of patients with surgical pathology, investigation of the functional state of vital organs and systems in patients, solving clinical situational tasks and tests, mastering the elements of medical equipment for examination of patients and drug users, and mastering the skills of providing first pre - care.

12. Control methods. The current control is carried out during the training sessions and is aimed at verifying students' acquisition of educational material (it is necessary to describe the forms of conducting the current control during the training sessions on the 4-point scale (national scale). Forms of assessment of current. When evaluating the mastering of each topic for the current educational activity, the student is presented with grades in the 4-point ballroom (national). It takes into account all types of work provided for by the discipline program. A student

should receive an assessment from each topic for further conversion of marks into points on a multi-point (200-point) scale.
educational activities should be standardized and include the control of theoretical and practical training.
Assessment of current training activities.

13. Form of the final control of the success of the training: a differential grade. It is a form of final control, which is to assess the student's mastering of educational material solely on the basis of the results of certain types of work in practical classes. A differentiated score from the disciplines is carried out after the completion of its study.

14. Scheme of allocation and distribution of scores received by students For disciplines the form of final control is a differentiated score: The maximum number of points that a student can gain for his current educational activity when studying a discipline is 200 points. The minimum number of points that a student should collect for his current educational activity for enrollment of the discipline is 120 points.

The calculation of the number of points is made on the basis of the student's assessment of the 4-rd ball (national) scale during the study of discipline, by calculating the arithmetic mean (CA) rounded up to two decimal places. The resulting value is converted to a score on a multi-scale scale in the following way: x = SAX200 / 5 For convenience, the table is converted into a 200-point scale: Recalculation of the average for the current activity in the multi-scale scale for the disciplines ending with the score.

4-point scale	200-point scale
5	200
4.97	199
4.95	198
4.92	197
4.9	196
4.87	195
4.85	194
4.82	193
4.8	192
4.77	191
4.75	190
4.72	189
4.7	188
4.67	187
4.65	186
4.62	185
4.6	184

4.57	183
4.52	181
4.5	180
4.47	179
4.45	178
4.42	177
4.4	176
4.37	175
4.35	174
4.32	173
4.3	172
4.27	171
4.24	170
4.22	169
4.19	168
4.17	167
4.14	166
4.12	165
4.09	164
4.07	163
4.04	162
4.02	161
3.99	160
3.97	159
3.94	158
3.92	157
3.89	156
3.87	155

3.84	154
3.82	153
3.79	152
3.77	151
3.74	150
3.72	149
3.7	148
3.67	147
3.65	146
3.62	145
3.57	143
3.55	142
3.52	141
3.5	140
3.47	139
3.45	138
3.42	137
3.4	136
3.37	135
3.35	134
3.32	133
3.3	132
3.27	131
3.25	130
3.22	129
3.2	128
3.17	127
3.15	126

3.12	125
3.1	124
3.07	123
3.02	121
3	120
Less than 3	Not enough

Disciplines are independently converted into ECTS and 4-point (national) scales. The ECTS scores on the 4-point scale are not converted and vice versa.
Points of students studying in one specialty, taking into account the number of points scored from the discipline, are ranked on the ECTS scale as follows:

ECTS Score	Statistical Index
A	the best 10% of students
B	the next 25% of students
C	the following 30% of students
D	next 25% of students
E	the last 10% of students

A, B, C, D, E rankings are awarded to students of this course, who study in one specialty and successfully complete the study of discipline. Students rated FX, F ("2") are not included in the list of ranked students. Students with an FX score after reassembly automatically receive a "E" score. Score points for students who have successfully completed the program are converted to the traditional 4-point scale by the absolute criteria listed in the table below:

Score points	Score on a 4-point scale
From 170 to 200 points	5
From 140 to 169 points	4
From 139 points to the minimum number of points a student should get	3
Below is the minimum number of points a student should collect	2

The ECTS mark on a traditional scale is not converted because the ECTS scale and the four-point scale are independent. Objectivity of assessment of students' educational activity is checked by statistical methods (correlation coefficient between ECTS assessment and national scale assessment).
15. Methodical support Teaching discipline at lectures is provided by methodical developments, visual means of teaching (presentations, educational films), information resources of the departments. Teaching of academic

discipline in practical classes is provided by methodological developments, the topics of independent and individual tasks, visual means of teaching (presentations, educational films, mannequins and other means for working out practical skills of resuscitation), information resources of departments, algorithms of practical skills and structured skills control algorithms.
Independent and individual work in studying the discipline is provided by methodological developments on independent work of students.

16. Recommended literature

Auxiliary

1. Donald C. Correll, MD Facep. Hypotermia practice Guid // The physician assistant practice Guide. For Emergency Departments urgent care centers, and family practices. A cuta care Horizons. Jackson, TN.2012.

2. Marx, John, Ron Walls, and Robert Hockberger. Rosen's emergency medicine-concepts and clinical practice. Elsevier Health Sciences, 2013.

3. Skone, Richard, et al., eds. Managing the Critically Ill Child: A Guide for Anaesthetists and Emergency Physicians. Cambridge University Press, 2013.

4. Schneider, Andreas, Erik Popp, and Bernd W. Böttiger. "Cardiopulmonary Resuscitation." Surgical Intensive Care Medicine. Springer International Publishing, 2016. 153-166.

17. Information resources

1. American Heart Association https: // www.onlineaha.org/
2. British Heart Foundation https: // www. bhf. org. uk /