

СОВРЕМЕННЫЕ ПОДХОДЫ К ОКАЗАНИЮ ПЕРВОЙ ПОМОЩИ ПРИ ОТРАВЛЕНИЯХ И МЕРЫ ПО ПОВЫШЕНИЮ ЭФФЕКТИВНОСТИ ЕЕ ОКАЗАНИЯ

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Резюме. Цели исследования – анализ современных принципов и подходов к оказанию первой помощи (ПП) при отравлениях; изучение особенностей нормативного правового регулирования оказания ПП при отравлениях в Российской Федерации; определение мер по повышению эффективности оказания первой помощи; создание проекта универсального алгоритма диспетчерского сопровождения первой помощи при отравлениях.

Материалы и методы исследования. Материалы исследования – отечественные и зарубежные научные публикации по оказанию первой помощи при отравлениях; международные и национальные рекомендации, в которых охарактеризованы современные принципы оказания ПП при отравлениях; комплекты практических рекомендаций/протоколов для диспетчеров скорой медицинской помощи (СМП), включающие инструкции для дистанционного консультирования очевидцев происшествия по вопросам оказания ПП при отравлениях.

Результаты исследования и их анализ. Представлен обзор современных принципов и подходов к оказанию ПП при отравлениях, основанный на анализе международных и национальных рекомендаций по первой помощи; проанализированы особенности нормативного правового регулирования оказания ПП при отравлениях в Российской Федерации; определены пути повышения эффективности ее оказания. В качестве перспективного направления совершенствования оказанию первой помощи при отравлениях обсуждается практика дистанционного консультирования по телефону диспетчерами экстренных служб необученных свидетелей происшествия по вопросам оказания ПП; представлен и предлагается для дальнейшего обсуждения проект универсального русскоязычного алгоритма для диспетчерского сопровождения ПП при отравлениях.

Ключевые слова: алгоритм, диспетчерское сопровождение, отравления, первая помощь, скорая медицинская помощь, смертность

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MODERN APPROACHES TO THE FIRST AID PROVISION IN CASES OF POISONINGS AND METHODS OF THE PROVISION IMPROVEMENT

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Summary. Investigation purposes – an analysis if modern approaches to the first aid (FA) provision in cases of poisoning; a researching of normative legal regulation of FA provision in the Russian Federation; a determination of measures of first aid provision improvement; creation of the project of universal algorithm of dispatching support of first aid in cases of poisonings.

Material and methods of the investigation. Investigation materials – national and international publications about a first aid provision in cases of poisonings; international and national recommendations which characterize modern approaches to the FA provision in cases of poisonings; complexes of practical recommendations/protocols for ambulance dispatchers, including instructions for distance advising of injury witnesses on the provision of FA in cases of poisonings.

Investigation results and their analysis. A review of modern principles and approaches to the FA provision in cases of poisonings based on the analysis of national and international FA recommendations was presented; Features of normative legal regulation of FA provision in cases of poisonings in the Russian Federation were analyzed; ways of FA provision effectivity improvement were

determined. A practice of distance phone advising by emergency service dispatchers of an unskilled injury witnesses on the provision of FA is discussed as a perspective direction of improvement of FA provision in cases of poisonings; a project of universal Russian language algorithm for dispatcher support of FA in cases of poisonings was presented and now is offered for further discussion.

Key words: *algorithm, ambulance, dispatcher support, first aid, lethality, poisonings*

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Introduction

According to the World Health Organization (WHO)¹, there were 84,300 unintentional poisoning deaths worldwide in 2019, representing 0.2% of all deaths or 1.1 deaths per 100,000 population¹. With a relatively low mortality rate, poisoning is one of the leading causes of potentially preventable human death from unintentional external exposures².

In the Russian Federation there is a tendency of a growing death rate from poisoning [1-3]³. Thus, according to the official statistics, in 2021 the number of deaths from poisoning was 32.1 thousand (1.3% of all deaths or 22.2 cases per 100 thousand people)³, which can be conventionally expressed as a death of one person every 15 minutes (Table 1). Taking into consideration the fact, that the cumulative "contribution" of this cause to the death rate of the Russian population from diseases is close to death rate (2021) from diabetes mellitus (44,4 thousand people), hypertensive disease (16,5 thousand people) or myocardial infarction (55,8 thousand people)³, the prevention of poisonings, on the one hand, and reducing lethality by increasing the effectiveness of first and medical aid, on the other hand, are the urgent tasks for the domestic health care system.

As in other critical health disorders, in severe acute poisoning the probability of preserving the life of victims depends on the promptness of assistance. Given that emergency medical care, as a rule, is not available, an important role in reducing mortality in poisoning is played by the first aid (FA) delivered by witnesses of the event [4]. There is a proven relationship between the provision of FA by witnesses and the survival of victims with acute poisoning [5, 6].

However, in many cases witnesses do not provide the necessary FA to victims with poisoning [7, 8]. Moreover, in

cases where attempts are made to provide FA, witnesses often use unrecommended techniques, which can lead to the development of serious, including life-threatening, complications [7, 9, 10].

The absence in the Russian Federation of a unified system for recording cases of FA does not allow to judge about the frequency and effectiveness of the use of this type of assistance in poisoning. At the same time, a number of domestic studies indicate low motivation and readiness of the population to provide FA and an unacceptable level of knowledge of the general population on FA provision in life-threatening conditions [11-15].

Wide involvement of the population in the process of FA provision in case of poisoning creates the prospect of significant reduction of mortality and disability, and therefore it is an important direction in the sphere of improvement of the national system of FA. Mass training in the principles and skills of FA provision and remote telephone counseling by dispatchers of emergency services to untrained witnesses of events on FA provision are considered to be effective means of intensification of public participation in FA provision in critical states [16, 17]⁴. In creating appropriate programs and developing their methodological framework, it is important to ensure consistency with current scientific understandings of best FA practice.

The aim of the study is to analyze modern principles and approaches to the first aid treatment at poisonings; to study the peculiarities of the normative-legal regulation of the first-aid treatment at poisonings in the Russian Federation; to determine the directions for increasing the efficiency of the first aid treatment; to create a project of a universal algorithm for the dispatching support of the first-aid treatment at poisonings.

Materials and research methods.

The research materials are domestic and foreign scientific publications and international and national recommendations on FA describing modern principles of its rendering when poisoning; sets of practical recommendations/

¹ Global Health Estimates 2020: Deaths by Cause, Age, Sex, by Country and by Region, 2000-2019. World Health Organization. 2020. URL: <https://www.who.int/data/gho/data/themes/mortality-and-global-health-estimates/ghle-leading-causes-of-death> [Дата обращения: 23.09.2022]

² Injury Prevention & Control. Injuries and Violence Are Leading Causes of Death. Centers for Disease Control and Prevention. 2020. URL: <https://www.cdc.gov/injury/wisqars/animated-leading-causes.html> [Дата обращения: 23.09.2022]

³ Официальная статистика. Население. Демография. Число умерших по причинам смерти. Федеральная служба государственной статистики. 2021.

URL: https://rosstat.gov.ru/storage/mediabank/demo24-2_2021.xlsx [Дата обращения: 23.09.2022]

⁴ International First Aid Resuscitation and Education Guidelines. International Federation of Red Cross and Red Crescent Societies. Red Cross Red Crescent Networks. 2020.

URL: https://www.globalfirstaidcentre.org/wp-content/uploads/2021/02/EN_GFARC_GUIDELINES_2020.pdf [Дата обращения: 23.09.2022]

Число умерших от отравлений в России в 2021 г.³, чел.
Number of deaths from poisoning in 2021 in Russia³, quantity of people

| Рубрики причин смерти в соответствии с номенклатурой Росстата Rubrics of death causes according to Rosstat nomenclature | Код МКБ-10 ICD-10 code | Число умерших Number of deaths |
|--|---------------------------|-----------------------------------|
| Острая интоксикация алкоголем Acute alcohol intoxication | F10.0 | 1 |
| Случайное отравление (воздействие) алкоголем Random poisoning (influence) of alcohol | X45 | 9 274 |
| Случайное отравление и воздействие медикаментами Random poisoning or influence of medicines | X40, X41, X43, X44 | 426 |
| Случайное отравление и воздействие наркотиками и психодисплетиками (галлюциногенами) Random poisoning and influence of drugs and psychodispleptics (hallucinogens) | X42 | 4 709 |
| Прочие случайные отравления Other random poisonings | X46-X49 | 5 629 |
| Преднамеренное самоотравление и воздействие алкоголем Deliberate self-poisoning and alcohol influence | X65 | 5 |
| Отравление и воздействие медикаментами с неопределёнными намерениями Poisonings caused by medicines used with uncertain purposes | Y10, Y11, Y13, Y14 | 648 |
| Отравление и воздействие наркотиками и психодисплетиками (галлюциногенами), не классифицированное в других рубриках, с неопределёнными намерениями Poisoning and influence of drugs and psychodispleptics (hallucinogens) which were done with uncertain purposes and which are unsystematized in another rubrics | Y12 | 2 915 |
| Отравление и воздействие алкоголем с неопределёнными намерениями Poisoning and influence of alcohol which were done with uncertain purposes | Y15 | 3 280 |
| Прочие отравления с неопределёнными намерениями Other poisonings with uncertain purposes | Y16-Y19 | 5 225 |
| Всего / Total | | 32 112* |

Примечание. * Рассчитанный суммарный показатель числа умерших от отравлений, очевидно, ниже реального, так как неопределённое количество случаев смерти от отравлений может поглощаться следующими рубриками причин смерти: «Смерть по неустановленным причинам», «Случайные несчастные случаи, вызванные воздействием дымом, огнем и пламенем», «Другие преднамеренные самоповреждения (включая самоубийство)», «Убийство (нападение, насилие)», «Воздействие дымом, огнем и пламенем с неопределёнными намерениями», «Уточненные и неуточненные повреждения с неопределёнными намерениями»; МКБ-10 – Международная классификация болезней и проблем, связанных со здоровьем, 10-го пересмотра

Note. * Calculated summary indicator of quantity of deaths is obviously lower than real because uncertain number of deaths from poisoning can contain in another rubrics of death causes. There are "Death from uncertain causes", "Random accidents caused by influence of smoke or fire", "Other deliberate self-harm incidents (including suicide)", "Murder (assault, violence)", "Influence of smoke or fire with uncertain purposes", "Refined and unrefined damages with uncertain purposes"; ICD-10 – International classification of diseases and problems related with health, after 10th revision

protocols for the ambulance dispatchers including the instructions for remote consultation of the accident witnesses concerning the FA rendering when poisoning. The materials were searched in September 2022 using electronic search resources and keyword combinations presented in Table 2. Additionally, a search for papers on the topic of the study was conducted in the list of sources included in the publication review. Chronological restrictions were not applied to the search.

A review of current general principles of FA in poisoning and a structured comparative analysis of recommendations and dispatcher instructions on FA in poisoning were performed. The results of the comparative analysis were published as a data set in the Mendeley Data online repository [18]. The peculiarities of FA in case of poisonings caused by ingestion of specific poisons of animal and plant origin and by mushroom poisons were not considered in the present study.

The results of the study and their analysis. Modern principles and approaches to the first aid at the poisonings: the review of the international and national foreign recommendations

Seventeen international and national foreign recommendations and consensus statements on FA, including the provision of FA for poisoning have been analyzed [18].

The safety of the person providing FA and other witnesses of the incident is the priority, so before approaching the victim, it is necessary to assess the environment and make sure that there are no threatening factors^{4,5}. In the event of a

threat to life and health, remain in a safe place, call emergency services, and await their arrival. To avoid contact with a toxic substance, personal protective equipment – PPE, such as a face mask, gloves – should be used while providing FA^{4,6}.

Poisoning can be suspected from information provided by the victim, as well as from the results of the scene examination, such as the presence of opened packages of medications near the victim, and the assessment of the victim's condition⁴. Signs such as the smell of chemicals in the air exhaled by the victim, burns, vomiting, confusion or unconsciousness, seizures, difficulty breathing, changes in pupil size, complaints of nausea, burning of the mouth and throat, and abdominal pain, among others, may indicate possible poisoning⁵. Many manifestations of poisoning are nonspecific and may coincide with those of other critical conditions.

If severe poisoning is suspected, one should immediately call the emergency room or local poison control center (if one exists) and follow the instructions of a specialist [19]⁵.

If possible, a person providing FA should establish what substance caused the poisoning, determine the amount of the

⁵ ANZCOR Guideline 9.5.1 – First Aid Management of Poisoning. Australian and New Zealand Committee on Resuscitation. 2021. URL: <https://www.resus.org.nz/assets/Uploads/ANZCOR-Guideline-9.5.1-Poisoning-April-2021.pdf> [Дата обращения: 23.09.2022]

⁶ Basic first aid in Africa. Belgian Red Cross. 2021. URL: https://www.globalfirstaidcentre.org/wp-content/uploads/2020/09/BFA_Africa-HR-min.pdf [Дата обращения: 23.09.2022]

Параметры поиска материалов по теме исследования
Parameters of investigation theme materials searching

| Объект поиска Subject of searching | Язык поиска Language of searching | Средства поиска Instruments of searching | Сочетания ключевых слов Combinations of key words |
|--|--------------------------------------|---|---|
| Отечественные научные публикации National science publications | Русский Russian | 1. Научометрические базы данных Google Scholar, eLibrary.ru 2. Система веб-поиска Google 1. Scientometric data-bases Google Scholar, eLibrary.ru 2. System of web-searching Google | (Отравление) и (первая помощь) (Poisoning) and (first aid) |
| Зарубежные научные публикации Foreign science publications | Английский English | 1. Научометрические базы данных Google Scholar, PubMed, Scopus 2. Система веб-поиска Google 1. Scientometric data-bases Google Scholar, PubMed, Scopus 2. System of web-searching Google | (Poisoning) and (first aid) |
| Международные и национальные рекомендации по ПП National and international first aid recommendations | Английский English | Система веб-поиска Google System of web-searching Google | (Guidelines) AND (first aid) |
| Практические рекомендации/ протоколы для диспетчеров СМП Practical recommendations /protocols for ambulance dispatchers | Английский English | Система веб-поиска Google System of web-searching Google | (EMS) and (dispatch or dispatcher or telecommunicator) AND (instructions or guidance) |

Сокращения: EMS –emergency medical services; ПП –первая помощь; СМП –скорая медицинская помощь
Abbreviations: EMS –emergency medical services

toxic substance ingested, the time of the beginning (duration) of exposure of the toxic substance to the organism, and report this information to the ambulance dispatcher and the ambulance team arriving at the scene^{4,5,6}.

The extent and nature of FA measures for victims of poisoning depends on the general condition of the victim and the alleged route of entry of the toxic substance into the body. Assessment of the victim's condition should begin with checking for consciousness (response) and breathing⁶.

If the victim is unconscious and not breathing normally, basic cardiopulmonary resuscitation (CPR) should be initiated immediately and continued until the arrival of the ambulance [20]⁵. The call to the ambulance should not delay the start of CPR: the call to the ambulance should be assigned to another eyewitness; in the absence of an assistant, it is recommended to use the hands-free phone function, which will allow to interact with the dispatcher in the process of resuscitation. In cases of poisoning by especially dangerous substances (cyanide, hydrogen sulfide, caustic substances, organophosphorus compounds, etc.), as well as in cases where the type of poisoning substance is unknown, to ensure the safety of the person providing CPR, mouth-to-mouth or mouth-to-nose artificial respiration should be excluded from CPR and limited to continuous compression of the chest^{4,5}. If a public defibrillator program is available in the region, it is recommended that basic CPR be supplemented with the use of an automated external defibrillator [20].

If the victim is unconscious, but normal breathing is preserved, it is necessary to give him a stable lateral position — lying on his side with his head tilted back. This reduces the risk of airway obstruction by the root of the tongue and aspiration of stomach contents in case of regurgitation [21]⁵.

If the victim is conscious, he should be helped into a comfortable position. The preferred position in enteric poisoning is lying on the left side^{4,6}. For this position there is a proven effect of significantly delayed absorption of some drugs, including acetaminophen and nifedipine, which is probably

due to delayed evacuation of the gastric contents into the small intestine [22].

Until the arrival of the ambulance, one should stay close to the victim and carefully observe his consciousness and breathing.

An attempt should be made to stop or reduce the victim's exposure to the toxic substance⁵. In the case of oral ingestion of a toxic substance, help the victim to remove its residues from the oral cavity by rinsing with water and spitting⁴. However, the casualty should not ingest milk, water, activated charcoal, or any other drugs or liquids unless instructed to do so by telephone by a poison control center specialist [23-25]. Provocation of vomiting to remove the ingested toxic substance is not recommended⁴.

For inhalation poisoning such as carbon monoxide, attempts should be made to evacuate the victim from the toxic exposure area to the nearest safe place, but only if this does not pose a danger to the person providing the PP5. Oxygen inhalation can be provided to a victim with carbon monoxide or carbon dioxide poisoning with the proper skill and equipment.

The toxic substance contaminated clothing should be removed and placed in a plastic bag, taking precautionary measures^{5,6}. In case of contact with caustic substances — alkalis or acids — the eyes and skin should be immediately rinsed abundantly with clean running water to reduce tissue damage [21]⁵. The duration of lavage should be at least 10-15 minutes [26]⁶. Caution is important during lavage to avoid contamination of healthy tissues with the hazardous agent [27]. Dry powdered toxicants should be carefully removed from the skin surface with a gloved hand or cloth prior to lavage [24, 28]. Contact lenses should be removed before or during eye washing. For washing the eyes and skin you can use a solution of Difoterin® (not registered in the Russian Federation)⁴ which neutralizes both alkalis and most acids.

In cases of opioid overdose, rapid administration of the antagonist, naloxone, can help to eliminate dangerous

toxic effects and save life. With a significant increase in opioid overdose deaths now being reported globally⁷, the international scientific community recommends that naloxone be widely used, either intramuscularly or as a nasal spray, in the provision of FA for victims with cardiac and/or respiratory arrests suspected to be caused by opioid overdose [29]. Such practice assumes the corresponding legal support, and also training and equipment of potential participants of rendering the first aid^{4,8}.

Peculiarities of the normative-legal regulation of first-aid treatment in cases of poisoning in Russia.

The domestic normative legal base provides formal grounds for providing first aid in cases of poisoning. The official list of FA rendering in Russia (approved by Order No.477n of the Ministry of Health and Social Development of Russia, 4 May 2012)⁹ includes both poisonings and a number of life-threatening conditions that may be complications of acute poisonings, in particular: unconsciousness, respiratory and circulatory arrest.

The relevant official list of first aid measures⁹ contains a set of general measures that are applicable, in particular, to situations of acute poisoning and are aimed at: assessing the situation and ensuring safety, including the identification and elimination of factors threatening the life and health of the victim and the person providing FA; assessing the number of victims and movement of the victim; calling for help; assessing the condition of the victim — determining signs of life and a detailed examination of the victim; giving the body of the victim the optimal positioning. In addition, the list includes the following measures aimed at stopping the exposure of the victim to toxic substances: removal of hazardous chemicals from the damaged surface and washing the damaged surface with running water, as well as gastric lavage by taking water and inducing vomiting.

It should be noted that the use, as part of the provision of FA, of measures aimed at the removal of the toxic substance from the stomach has limitations. On the one hand, it is due to the lack — with a significant amount of scientific data, including the results of a number of randomized controlled trials — of a proven positive effect of gastric decontamination on the clinical outcome of poisoning, on the other hand, the risk of severe complications [30-32]. In particular, in cases of enteric poisoning by caustic substances provocation of vomiting can lead to serious additional tissue damage [33].

When providing FA to victims of poisoning, these restrictions should be taken into account, as well as other features of FA and the approaches to the provision of FA recommended by the international scientific and medical community, including: collecting information about the substance that supposedly caused the poisoning, about the amount of the substance ingested and the duration of exposure, the transfer of this information to specialists of the ambulance; the need to exclude from the complex basic CPR in cases of oral poisoning of especially dangerous or unstable poisoning.

⁷ Opioid overdose. World Health Organization. 2021. URL: <https://www.who.int/news-room/fact-sheets/detail/opioid-overdose> [Дата обращения: 23.09.2022]

⁸ ANZCOR Guideline 9.5.2 – First Aid Management of Opioid Overdose. Australian and New Zealand Committee on Resuscitation. 2021. URL: https://resus.org.au/download/9_5_poisoning/anzcor-guideline-9-5-2-opioid-overdose-april-2021.pdf [Дата обращения: 23.09.2022]

⁹ Об утверждении перечня состояний, при которых оказывается первая помощь, и перечня мероприятий по оказанию первой помощи: приказ Минздрава России от 04.05.2012 № 477н. URL: http://www.consultant.ru/document/cons_doc_LAW_129862 [Дата обращения: 23.09.2022]

All this indicates the need to establish unified rules for CPR, defining an optimal set of measures, as well as the sequence and technique of their performance in various forms of acute poisoning. Approval of rules for FA provision is stipulated by a draft law on amendments to Art. 31 "First Aid" of the Federal Law "On Foundations of Citizens' Health Protection in the Russian Federation" dd. 21.11.2011 № 323-FZ¹⁰. The draft law is currently in its third reading in the State Duma. The same initiative proposes amendments to Art. 31 with respect to the possibility of using automatic external defibrillators as part of the provision of FA.

The use of oxygen inhalation for carbon monoxide and carbon dioxide poisoning and the use of naloxone for opioid poisoning seem expedient within the concept of extended FA introduced in the bill, which provides for the provision of FA by persons with appropriate training, using medical devices and medicines [34]¹⁰.

Remote support of first aid in case of poisoning

The practice of telephone briefing by emergency dispatchers of witnesses to an event on FA has proven to be an effective means of promptly involving untrained people in first aid. Thanks to dispatcher support, event witnesses are more likely to attempt first aid before the arrival of the ambulance team, which can contribute to a significant reduction in the lethality of life-threatening health disorders [35-37].

The creation of a unified domestic program of dispatcher support of FA requires the development of algorithms for remote interviewing and coaching of witnesses of an accident in various emergency conditions, including poisoning. Such work should be carried out taking into account the international experience and modern recommendations on FA.

The authors have analyzed 5 sets of foreign practical recommendations/protocols for the dispatchers of Emergency Medical Services¹¹⁻¹⁵, available on the Internet. Each of the kits contains instructions on how to provide FA in case of poisoning, designed for their transmission by phone to the witnesses of the accident [18].

Similarly structured guidelines/protocols define the sequence and content of the dispatcher's verbal interaction with the person calling for the ambulance: the reason for calling for help; the address of the scene; the number of victims; data on the victim/s (age, gender); assessment of the safety environment; assessment of the victim/s' condition; name and

¹⁰ О внесении изменения в статью 31 Федерального закона «Об основах охраны здоровья граждан в Российской Федерации»: Законопроект № 466977-7. 2021.

URL: <https://sozd.duma.gov.ru/bill/466977-7> [Дата обращения: 23.09.2022]

¹¹ Emergency Medical Dispatch Guide Cards. Draft Version 0.26.2. Flip Card Format. The Open ISES Project. 2008. URL: <https://silo.tips/downloadFile/emergency-medical-dispatch-guide-cards> [Дата обращения: 23.09.2022]

¹² Milwaukee County EMS Dispatch Guidelines and Pre-Arrival Instructions For a Lights & Sirens-Tiered Response. Milwaukee County EMS. 2008. URL: https://county.milwaukee.gov/ImageLibrary/User/ispitzer/EMSOperationalPolicies/Dispatch_lights_and_sirens_tiered_July_23_2008.pdf [Дата обращения: 23.09.2022]

¹³ Criteria Based Dispatch. Emergency Medical Dispatch Guidelines. Sixth Edition. King County Emergency Medical Services Division. 2010. URL: <https://vdocument.in/criteria-based-dispatch-ems-2019-06-11-revised-0710-cbd-introduction-introduction.html?page=1> [Дата обращения: 23.09.2022]

¹⁴ State of New Jersey Emergency Medical Dispatch Guidecards. State of New Jersey Department of Health. Office of Emergency Medical Services. 2020.

URL: <https://www.nj.gov/911/home/highlights/EMD%20Guidecards%202020%20Final.pdf> [Дата обращения: 23.09.2022]

¹⁵ Dispatch Prearrival Instructions. Department of Health Services County of Los Angeles. 2022.

URL: http://file.lacounty.gov/SDSInter/dhs/1031386_227.1EMS-DispatchGuidelines.pdf [Дата обращения: 23.09.2022]

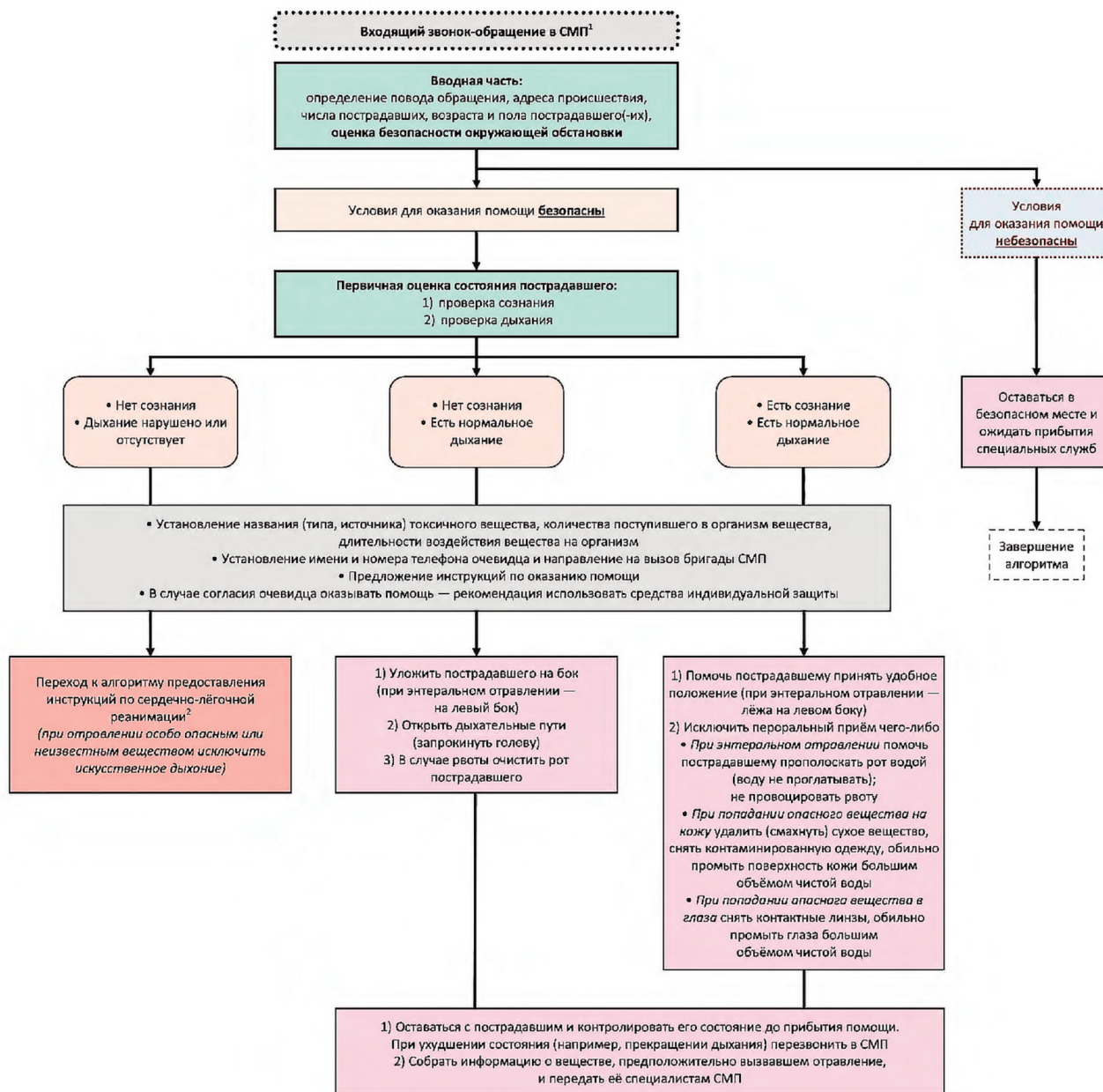


Рисунок. Проект диспетчерского алгоритма дистанционного опроса и инструктирования очевидцев происшествия по вопросам оказания первой помощи при отравлениях; *СМП — скорая медицинская помощь

Figure. A project of dispatcher algorithm of distance survey and instruction of occasion witnesses about problems of first aid in case of poisonings.

phone number of the person calling for the ambulance team; sending for the ambulance team and giving instructions on FA if the witness agrees to follow them.

This sequence applies to all emergencies, including poisonings. However, for cases of poisoning, the dispatch recommendations/protocols include a number of additional points, including establishing, based on the information provided by the witness, the name (type, source) of the toxic substance, the amount of toxic substance entered into the body, the duration of exposure to the toxic substance on the body, as well as the instruction for the witness to collect all available information about the substance that allegedly caused poisoning and pass it to the ambulance.

In cases of poisonings, special attention is paid to the safety of witnesses of the incident — according to the recommendations/protocols, dispatchers should emphasize to the witnesses the priority of their own safety, in particular, recommend evacuating the victim from the danger zone only when there is no immediate threat to the assisting persons.

The scope and content of FA instructions provided by the dispatcher depend on the results of the assessment of the victim's condition, based on a rapid check of consciousness and breathing. Absence of consciousness and normal breathing is interpreted as cardiac arrest and dictates the necessity of immediate transition to remote provision of instructions on basic CPR — the corresponding principles and Russian-language algorithm of dispatcher support are presented in the previous publications [38-40]. Lack of consciousness with preserved normal breathing requires giving the victim a stable lateral position. The FA instructions included in the dispatch recommendations/protocols studied to limit exposure to toxic substances on the body include removal of contaminated clothing and removal of contact lenses, removal of powdered toxic substances without water, and removal of chemicals in the eyes by flushing with water. One set of recommendations/protocols includes instructions to use naloxone in cases of poisoning suspected to be caused by opioids. All kits instructed the victim to avoid enteral ingestion of any drugs, food or liquids.

It was found that in a number of cases, instructions on FA presented in recommendations/protocols for ambulance dispatchers are not consistent with the provisions of current international recommendations on FA, which may have a negative impact on the effectiveness of first aid and on the safety of victims and those providing FA. Thus, none of the analyzed sets of dispatcher recommendations/protocols contains the following instructions: help the victim to clean the mouth from the toxic substance by rinsing with water and spit-

ting; exclude provocation of vomiting; ensure airway patency by tilting the head while giving the victim a stable side position; exclude artificial respiration from CPR complex in cases of poisoning by especially dangerous or unidentified substances. The instructions to flush the skin surface with clean running water to remove the toxic substance and to place the enteric poisoning victim on the left side were included in only one of the five sets of recommendations/protocols reviewed.

Based on the results of the analysis of international recommendations on the provision of FA for poisonings and the relevant dispatcher recommendations/protocols, taking into account the general principles of receiving calls from the population by ambulance dispatchers, as recommended by the Russian Ministry of Health¹⁶, a draft universal Russian-language algorithm of first aid by ambulance dispatchers for poisonings was created (figure). The algorithm is offered for discussion by the professional community and its further approbation as a promising component of a domestic program of remote first-aid counseling for witnesses of an accident.

Conclusion

Poisonings, a widespread cause of preventable human death, constitute a significant public health problem. An increase in the frequency and quality of FA delivery by the direct witnesses before medical aid arrives can help to reduce public mortality from poisonings. To improve the effectiveness of FA for poisonings in the Russian Federation it is necessary to implement a set of interrelated organizational transformations aimed, in particular: to improve the mechanisms of normative legal regulation of FA provision; to create a unified system of accounting and monitoring of the real practice of FA provision; to create conditions for the popularization of FA and mass training of the population in modern principles and skills of its provision. Additional effect from operative involvement of untrained people into the process of FA in case of poisoning will be connected with introduction of standardized practice of consulting witnesses of an accident on FA provision by phone. The proposed draft of the dispatcher algorithm can become a component of the corresponding domestic program and be used both in the training of dispatchers and in actual cases of remote support of FA.

¹⁶ Багненко С.Ф., Плавунев Н.Ф., Миннуллин И.П., Разумный Н.В. Общие принципы приема обращений от населения, поступающих на станции (отделения) скорой медицинской помощи, и определения повода для вызова скорой медицинской помощи. Методические рекомендации. Санкт-Петербург; 2018. 21 с. URL: <https://bagnenko.spb.ru/media/docs/139279593.pdf> [Дата обращения: 23.09.2022]

1. Лоскутов Д.В., Хамитова Р.Я. Динамика острых отравлений химической этиологии в республике Марий Эл // Международный журнал прикладных и фундаментальных исследований. 2018. № 8. С. 40-44.
2. Батиевская В.Б., Хаес Б.Б. Динамика и структура острых отравлений в Кемеровской области (Кузбассе) // Природные ресурсы Земли и охрана окружающей среды. 2020. Т.1, № 7-9. С. 62-65. doi: 10.26787/nydha-2713-203X-2020-1-7-8-9-62-65.
3. Сабаяев А.В., Голева О.П. Смертность населения Омской области в результате острых отравлений и воздействий токсических веществ за 2009–2018 гг. // Казанский медицинский журнал. 2020. Т.101, № 1. С. 84-90. doi: 10.17816/KMJ2020-84.
4. Ильяшенко К.К., Суходолова Г.Н., Поткхверия М.М., Белова М.В., Клыуев А.Е. Досуточная летальность при острых химических отравлениях // Вестник экстренной медицины. 2020. Т.13. № 5. С. 12-20.
5. Kadu S.S., Burungale S.U., Swami A.A. Pattern of Acute Organophosphorus Poisoning at a Tertiary Care Hospital of Western Maharashtra // International Journal of Clinical and Biomedical Research. 2021. V.7, No. 2. P. 23-27. doi: 10.31878/ijcbr.2021.72.05.
6. Park G., Ahn C., Kim J.H. Nationwide Population-Based Study of Poisoning-Induced Out-of-Hospital Cardiac Arrest in South Korea // BMJ Open. 2022. V.12, No. 4. P. e060378. doi: 10.1136/bmjopen-2021-060378.
7. Dayasiri M.B.K.C., Jayamanne S.F., Jayasinghe C.Y. Patterns and Outcome of Acute Poisoning among Children in Rural Sri Lanka // BMC Pediatr. 2018. V.18, No. 1. P. 274. doi: 10.1186/s12887-018-1246-0.
8. Khoso F.H., Panhwar F., Arain M.L., Dayo A., Ghoto M.A. Assessment of Various Types of Poisoning Cases Reported in District Hospital Badin, Sindh Province, Pakistan // Rawal Medical Journal. 2020. V.45, No. 2. P. 273-277.
9. Okumu M.O., Patel M.N., Bhogayata F.R., Olweny I.A., Ochola F.O., Onono J.O. Acute Poisonings at a Regional Referral Hospital in Western Kenya // Trop. Med. Infect. Dis. 2018. V.3, No. 3. P. 96. doi: 10.3390/tropicalmed3030096.
10. Mathew R., Jamshed N., Aggarwal P., Patel S., Pandey R.M. Profile of Acute Poisoning Cases and Their Outcome in a Teaching Hospital of North India // J. Family Med. Prim. Care. 2019. V.8, No. 12. P. 3935-3939. doi: 10.4103/jfmpc.jfmpc_832_19.
11. Кучеренко В., Гаркави А., Кавалерский М. Готовность населения к оказанию первой помощи при ДТП // Врач. 2009. № 12. С. 82.
12. Дежурный Л.И., Лысенко К.И., Батурич Д.И. Роль оказания первой помощи пострадавшим в предотвращении преждевременной смертности в России // Социальные аспекты здоровья населения. 2011. Т.2, № 18. С. 21.
13. Биркун А.А., Косова Е.А. Общественное мнение по вопросам обучения населения основам сердечно-легочной реанимации: опрос жителей Крымского полуострова // Журнал им. Н. В. Склифосовского «Неотложная медицинская помощь». 2018. Т.7, № 4. С. 311-318. doi: 10.23934/2223-9022-2018-7-4-311-318.
14. Биркун А.А., Косова Е.А. Готовность населения Крыма к проведению сердечно-легочной реанимации при внегоспитальной остановке кровообращения // Социальные аспекты здоровья населения. 2019. Т.65, № 1. С. 5. doi: 10.21045/2071-5021-2019-65-1-5.
15. Богдан И.В., Гурьлина М.В., Чистякова Д.П. Знания и практический опыт населения в вопросах оказания первой помощи // Здравоохранение Российской Федерации. 2020. Т.64, № 5. С. 253-257. doi: 10.46563/0044-197X-2020-64-5-253-257.
16. Semeraro F., Greif R., Böttiger B.W., Burkart R., Cimpoesu D., Georgiou M., et al. European Resuscitation Council Guidelines 2021: Systems Saving Lives // Resuscitation. 2021. No. 161. P. 80-97. doi: 10.1016/j.resuscitation.2021.02.008.
17. Wise S.L., Freeman C.L., Edemekong P.F. EMS Pre-Arrival Instructions. StatPearls. Treasure Island (FL), StatPearls Publishing, 2022.
18. Birkun A. Dataset of Comparative Analysis of Emergency Medical Services' Dispatcher Pre-Arrival Instructions and Provisions of National/International Guidelines on First Aid in Poisoning // Mendeley Data. 2022. No. 1. doi: 10.17632/2hm62dcgvk.1.
19. International Guidelines 2000 for CPR and ECC. Part 5: New Guidelines for First Aid // Circulation. 2000. V.102, No. 8. P. I-77-I-85. doi: 10.1161/circ.102.suppl_1.I-77.
20. Olasveengen T.M., Semeraro F., Ristagno G., Castren M., Handley A., Kuzovlev A., et al. European Resuscitation Council Guidelines 2021: Basic Life Support // Resuscitation. 2021. No. 161. P. 98-114. doi: 10.1016/j.resuscitation.2021.02.009.
21. Zideman D.A., Singletary E.M., Borra V., Cassan P., Cimpoesu C.D., De Buck E., et al. European Resuscitation Council Guidelines 2021: First aid // Resuscitation. 2021. No. 161. P. 270-290. doi: 10.1016/j.resuscitation.2021.02.013.
22. Borra V., Avau B., De Paep P., Vandekerckhove P., De Buck E. Is Placing a Victim in the Left Lateral Decubitus Position an Effective First Aid Intervention for Acute Oral Poisoning? A Systematic Review // Clin. Tox-
1. Loskutov D.V., Khamitova R.Ya. Dynamics of Acute Poisoning Chemical Etiology in the Republic of Mari El. *Mezhdunarodnyy Zhurnal Prikladnykh i Fundamentalnykh Issledovaniy* = International Journal of Applied and Basic Researches. 2018;8:40-44 (In Russ.).
2. Batiyevskaya V.B., Khayes B.B. Dynamics and Structure of Acute Poisoning in the Kemerovo Region (Kuzbass). *Prirodnyye Resursy Zemli i Okhrana Okruzhayushchey Sredy* = Natural Resources of the Earth and Environmental Protection. 2020;1(7-9):62-65. doi: 10.26787/nydha-2713-203X-2020-1-7-8-9-62-65 (In Russ.).
3. Sabayev A.V., Goleva O.P. Mortality of the Population of the Omsk Region as a Result of Acute Poisoning and Exposure to Toxic Substances in 2009-2018. *Kazanskiy Meditsinskiy Zhurnal* = Kazan Medical Journal. 2020;101;1:84-90. doi: 10.17816/KMJ2020-84 (In Russ.).
4. Ilyashenko K.K., Sukhodolova G.N., Potkhveriya M.M., Belova M.V., Klyuyev A.Ye. Mortality at First Day of Admission in Acute Chemical Poisoning. *Vestnik Ekstrennoy Meditsiny* = The Bulletin of Emergency Medicine. 2020;13;5:12-20 (In Russ.).
5. Kadu S.S., Burungale S.U., Swami A.A. Pattern of Acute Organophosphorus Poisoning at a Tertiary Care Hospital of Western Maharashtra. *International Journal of Clinical and Biomedical Research*. 2021;7;2:23-27. doi: 10.31878/ijcbr.2021.72.05.
6. Park G., Ahn C., Kim J.H. Nationwide Population-Based Study of Poisoning-Induced Out-of-Hospital Cardiac Arrest in South Korea. *BMJ Open*. 2022;12;4:e060378. doi: 10.1136/bmjopen-2021-060378.
7. Dayasiri M.B.K.C., Jayamanne S.F., Jayasinghe C.Y. Patterns and Outcome of Acute Poisoning among Children in Rural Sri Lanka. *BMC Pediatr*. 2018;18;1:274. doi: 10.1186/s12887-018-1246-0.
8. Khoso F.H., Panhwar F., Arain M.L., Dayo A., Ghoto M.A. Assessment of Various Types of Poisoning Cases Reported in District Hospital Badin, Sindh Province, Pakistan. *Rawal Medical Journal*. 2020;45;2:273-277.
9. Okumu M.O., Patel M.N., Bhogayata F.R., Olweny I.A., Ochola F.O., Onono J.O. Acute Poisonings at a Regional Referral Hospital in Western Kenya. *Trop. Med. Infect. Dis*. 2018;3;3:96. doi: 10.3390/tropicalmed3030096.
10. Mathew R., Jamshed N., Aggarwal P., Patel S., Pandey R.M. Profile of Acute Poisoning Cases and Their Outcome in a Teaching Hospital of North India. *J. Family Med. Prim. Care*. 2019;8;12:3935-3939. doi: 10.4103/jfmpc.jfmpc_832_19.
11. Kucherenko V., Garkavi A., Kavalerskiy M. First Aid Readiness in the Population at a Road Traffic Accident. *Vrach* = The Doctor. 2009;12:82 (In Russ.).
12. Dezhurnyy L.I., Lysenko K.I., Baturin D.I. The Role of Unprofessional Emergency Aid to a Victim in Avoiding Untimely Death in Russia. *Sotsialnyye Aspekty Zdorovya Naseleniya* = Social Aspects of Population Health. 2011;2;18:21 (In Russ.).
13. Birkun A.A., Kosova Ye.A. Public Opinion on Community Basic Cardiopulmonary Resuscitation Training: a Survey of Inhabitants of the Crimean Peninsula. *Zhurnal Im. N. V. Sklifosovskogo Neotlozhnaya Meditsinskaya Pomoshch* = Russian Sklifosovsky Journal of Emergency Medical Care. 2018;7;4:311-318. doi: 10.23934/2223-9022-2018-7-4-311-318 (In Russ.).
14. Birkun A.A., Kosova Ye.A. Readiness of the Crimean Population to Perform Cardiopulmonary Resuscitation in Out-of-Hospital Cardiac Arrest. *Sotsialnyye Aspekty Zdorovya Naseleniya* = Social Aspects of Population Health. 2019;65;1:5. doi: 10.21045/2071-5021-2019-65-1-5 (In Russ.).
15. Bogdan I.V., Gurylina M.V., Chistyakova D.P. Knowledge and Practical Experience of the Population in Providing First Aid. *Zdravoookhraneniye Rossiyskoy Federatsii* = Health Care of the Russian Federation. 2020;64(5):253-257. doi: 10.46563/0044-197X-2020-64-5-253-257 (In Russ.).
16. Semeraro F., Greif R., Böttiger B.W., Burkart R., Cimpoesu D., Georgiou M., et al. European Resuscitation Council Guidelines 2021: Systems Saving Lives. *Resuscitation*. 2021;161:80-97. doi: 10.1016/j.resuscitation.2021.02.008.
17. Wise S.L., Freeman C.L., Edemekong P.F. EMS Pre-Arrival Instructions. StatPearls. Treasure Island (FL): StatPearls Publishing, 2022.
18. Birkun A. Dataset of Comparative Analysis of Emergency Medical Services' Dispatcher Pre-Arrival Instructions and Provisions of National/International Guidelines on First Aid in Poisoning. Mendeley Data. 2022;1. doi: 10.17632/2hm62dcgvk.1.
19. International Guidelines 2000 for CPR and ECC. Part 5: New Guidelines for First Aid. *Circulation*. 2000;102;8:I-77-I-85. doi: 10.1161/circ.102.suppl_1.I-77.
20. Olasveengen T.M., Semeraro F., Ristagno G., Castren M., Handley A., Kuzovlev A., et al. European Resuscitation Council Guidelines 2021: Basic Life Support. *Resuscitation*. 2021;161:98-114. doi: 10.1016/j.resuscitation.2021.02.009.
21. Zideman D.A., Singletary E.M., Borra V., Cassan P., Cimpoesu C.D., De Buck E., et al. European Resuscitation Council Guidelines 2021: First aid. *Resuscitation*. 2021;161:270-290. doi: 10.1016/j.resuscitation.2021.02.013.
22. Borra V., Avau B., De Paep P., Vandekerckhove P., De Buck E. Is Placing a Victim in the Left Lateral Decubitus Position an Effective First Aid

- icol. (Phila). 2019. V.57, No. 7. P. 603-616. doi: 10.1080/15563650.2019.1574975.
23. American Heart Association. 2005 International Consensus on Cardiopulmonary Resuscitation (CPR) and Emergency Cardiovascular Care (ECC) Science with Treatment Recommendations. Part 10: First Aid // *Circulation*. 2005. No. 112. P. 115-125. doi: 10.1161/CIRCULATIONAHA.105.166480.
24. Markenson D., Ferguson J.D., Chameides L., Cassan P., Chung K.L., Epstein J., et al. Part 17: First Aid: 2010 American Heart Association and American Red Cross Guidelines for First Aid // *Circulation*. 2010. V.122, No. 18 Suppl 3. P. S934-946. doi: 10.1161/CIRCULATIONAHA.110.971150.
25. Zarisfi F., Pek J.H., Oh J.H.H., Loke J.H., Lim S.H. Singapore First Aid Guidelines 2021 // *Singapore Med. J.* 2021. V.62, No. 8. P. 427-432. doi: 10.11622/smedj.2021112.
26. Singletary E.M., Charlton N.P., Epstein J.L., Ferguson J.D., Jensen J.L., MacPherson A.I., et al. Part 15: First Aid: 2015 American Heart Association and American Red Cross Guidelines Update for First Aid // *Circulation*. 2015. V.132, No. 18 Suppl 2. P. S574-S589. doi: 10.1161/CIR.0000000000000269.
27. Zideman D.A., De Buck E.D., Singletary E.M., Cassan P., Chalkias A.F., Evans T.R., et al. European Resuscitation Council Guidelines for Resuscitation 2015 Section 9. First Aid // *Resuscitation*. 2015. No. 95. P. 278-287. doi: 10.1016/j.resuscitation.2015.07.031.
28. ECC Committee, Subcommittees and Task Forces of the American Heart Association. 2005 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care. Part 14: First Aid // *Circulation*. 2005. V.112, No. 24 Suppl. P. IV1-203. doi: 10.1161/CIRCULATIONAHA.105.166575.
29. Olasveengen T.M., Mancini M.E., Perkins G.D., Avis S., Brooks S., Castrén M., et al. Adult Basic Life Support: International Consensus on Cardiopulmonary Resuscitation and Emergency Cardiovascular Care Science With Treatment Recommendations // *Resuscitation*. 2020. No. 156. P. A35-A79. doi: 10.1016/j.resuscitation.2020.09.010.
30. Pond S.M., Lewis-Driver D.J., Williams G.M., Green A.C., Stevenson N.W. Gastric Emptying in Acute Overdose: a Prospective Randomised Controlled Trial // *Med. J. Aust.* 1995. V.163, No. 7. P. 345-349. doi: 10.5694/j.1326-5377.1995.tb124625.x.
31. Heard K. The Changing Indications of Gastrointestinal Decontamination in Poisonings // *Clin. Lab. Med.* 2006. V.26, No. 1. P. 1-12. doi: 10.1016/j.cl.2006.01.001.
32. Avau B., Borra V., Vanhove A.C., Vandekerckhove P., De Paeppe P., De Buck E. First Aid Interventions by Laypeople for Acute Oral Poisoning. *Cochrane Database Syst Rev*. 2018. V.12, No. 12. P. CD013230. doi: 10.1002/14651858.CD013230.
33. Weigert A., Black A. Caustic Ingestion in Children // *Continuing Education in Anaesthesia Critical Care & Pain*. 2005. V.5, No. 1. P. 5-8.
34. Закурдаева А.Ю., Дежурный Л.И., Колодкин А.А. Расширенная первая помощь: перспективы и проблемы нормативно-правового регулирования // *Медицина катастроф*. 2021. № 4. С. 32-36. doi: 10.33266/2070-1004-2021-4-32-36.
35. Nikolaoou N., Dainty K.N., Couper K., Morley P., Tijssen J., Vaillancourt C., et al. A Systematic Review and Meta-Analysis of the Effect of Dispatcher-Assisted CPR on Outcomes from Sudden Cardiac Arrest in Adults and Children // *Resuscitation*. 2019. No. 138. P. 82-105. doi: 10.1016/j.resuscitation.2019.02.035.
36. Wang J., Zhang H., Zhao Z., Wen K., Xu Y., Wang D., et al. Impact of Dispatcher-Assisted Bystander Cardiopulmonary Resuscitation with Out-of-Hospital Cardiac Arrest: A Systemic Review and Meta-Analysis // *Prehosp. Disaster Med.* 2020. V.35, No. 4. P. 372-381. doi: 10.1017/S1049023X20000588.
37. Eberhard K.E., Linderoth G., Gregers M.C.T., Lippert F., Folke F. Impact of Dispatcher-Assisted Cardiopulmonary Resuscitation on Neurologically Intact Survival in Out-of-Hospital Cardiac Arrest: a Systematic Review // *Scand. J. Trauma Resusc. Emerg. Med.* 2021. V.29, No. 1. P. 70. doi: 10.1186/s13049-021-00875-5.
38. Биркун А.А. Сердечно-легочная реанимация под руководством диспетчера — действенный способ повышения выживаемости при внегоспитальной остановке кровообращения // *Скорая медицинская помощь*. 2018. № 4. С. 10-16. doi: 10.24884/2072-6716-2018-19-4-10-16.
39. Биркун А.А., Дежурный Л.И. Диспетчерское сопровождение при угрозе внегоспитальной остановки кровообращения // *Журнал им. Н.В. Склифосовского Неотложная медицинская помощь*. 2019. Т. 8, № 1. С. 60-67. doi: 10.23934/2223-9022-2019-8-1-60-67.
40. Биркун А.А., Фролова Л.П., Дежурный Л.И. Диспетчерское сопровождение первой помощи при внегоспитальной остановке кровообращения: Учебное пособие. М.: ФГБУ «Центральный научно-исследовательский институт организации и информатизации здравоохранения» Минздрава России, 2019. 44 с.
- Intervention for Acute Oral Poisoning? A Systematic Review. *Clin. Toxicol.* (Phila). 2019;57;7:603-616. doi: 10.1080/15563650.2019.1574975.
23. American Heart Association. 2005 International Consensus on Cardiopulmonary Resuscitation (CPR) and Emergency Cardiovascular Care (ECC) Science with Treatment Recommendations. Part 10: First Aid. *Circulation*. 2005;112:115-125. doi: 10.1161/CIRCULATIONAHA.105.166480.
24. Markenson D., Ferguson J.D., Chameides L., Cassan P., Chung K.L., Epstein J., et al. Part 17: First Aid: 2010 American Heart Association and American Red Cross Guidelines for First Aid. *Circulation*. 2010;122;18 Suppl 3:S934-946. doi: 10.1161/CIRCULATIONAHA.110.971150.
25. Zarisfi F., Pek J.H., Oh J.H.H., Loke J.H., Lim S.H. Singapore First Aid Guidelines 2021. *Singapore Med. J.* 2021;62;8:427-432. doi: 10.11622/smedj.2021112.
26. Singletary E.M., Charlton N.P., Epstein J.L., Ferguson J.D., Jensen J.L., MacPherson A.I., et al. Part 15: First Aid: 2015 American Heart Association and American Red Cross Guidelines Update for First Aid. *Circulation*. 2015;132;18 Suppl 2:S574-S589. doi: 10.1161/CIR.0000000000000269.
27. Zideman D.A., De Buck E.D., Singletary E.M., Cassan P., Chalkias A.F., Evans T.R., et al. European Resuscitation Council Guidelines for Resuscitation 2015 Section 9. *First Aid. Resuscitation*. 2015;95:278-287. doi: 10.1016/j.resuscitation.2015.07.031.
28. ECC Committee, Subcommittees and Task Forces of the American Heart Association. 2005 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care. Part 14: First Aid. *Circulation*. 2005;112;24 Suppl:IV1-203. doi: 10.1161/CIRCULATIONAHA.105.166575.
29. Olasveengen T.M., Mancini M.E., Perkins G.D., Avis S., Brooks S., Castrén M., et al. Adult Basic Life Support: International Consensus on Cardiopulmonary Resuscitation and Emergency Cardiovascular Care Science With Treatment Recommendations. *Resuscitation*. 2020;156:A35-A79. doi: 10.1016/j.resuscitation.2020.09.010.
30. Pond S.M., Lewis-Driver D.J., Williams G.M., Green A.C., Stevenson N.W. Gastric Emptying in Acute Overdose: a Prospective Randomised Controlled Trial. *Med. J. Aust.* 1995;163;7:345-349. doi: 10.5694/j.1326-5377.1995.tb124625.x.
31. Heard K. The Changing Indications of Gastrointestinal Decontamination in Poisonings. *Clin. Lab. Med.* 2006;26;1:1-12. doi: 10.1016/j.cl.2006.01.001.
32. Avau B., Borra V., Vanhove A.C., Vandekerckhove P., De Paeppe P., De Buck E. First Aid Interventions by Laypeople for Acute Oral Poisoning. *Cochrane Database Syst Rev*. 2018;12;12:CD013230. doi: 10.1002/14651858.CD013230.
33. Weigert A., Black A. Caustic Ingestion in Children. *Continuing Education in Anaesthesia Critical Care & Pain*. 2005;5;1:5-8.
34. Zakurdayeva A.Yu., Dezhurnyy L.I., Kolodkin A.A. Extended First Aid: Perspectives and Challenges of Regulatory and Legal Framework. *Meditsina Katastrof = Disaster Medicine*. 2021;4:32-36. doi: 10.33266/2070-1004-2021-4-32-36 (In Russ.).
35. Nikolaoou N., Dainty K.N., Couper K., Morley P., Tijssen J., Vaillancourt C., et al. A Systematic Review and Meta-Analysis of the Effect of Dispatcher-Assisted CPR on Outcomes from Sudden Cardiac Arrest in Adults and Children. *Resuscitation*. 2019;138:82-105. doi: 10.1016/j.resuscitation.2019.02.035.
36. Wang J., Zhang H., Zhao Z., Wen K., Xu Y., Wang D., et al. Impact of Dispatcher-Assisted Bystander Cardiopulmonary Resuscitation with Out-of-Hospital Cardiac Arrest: A Systemic Review and Meta-Analysis. *Prehosp. Disaster Med.* 2020;35;4:372-381. doi: 10.1017/S1049023X20000588.
37. Eberhard K.E., Linderoth G., Gregers M.C.T., Lippert F., Folke F. Impact of Dispatcher-Assisted Cardiopulmonary Resuscitation on Neurologically Intact Survival in Out-of-Hospital Cardiac Arrest: a Systematic Review. *Scand. J. Trauma Resusc. Emerg. Med.* 2021;29;1:70. doi: 10.1186/s13049-021-00875-5.
38. Birkun A.A. Dispatcher-Assisted Cardiopulmonary Resuscitation — an Efficient Way for Improving Survival after Out-of-Hospital Cardiac Arrest. *Skoraya Meditsinskaya Pomoshch' = Emergency Medical Care*. 2018;4:10-16. doi: 10.24884/2072-6716-2018-19-4-10-16 (In Russ.).
39. Birkun A.A., Dezhurnyy L.I. Dispatcher Assistance in Out-of-Hospital Cardiac Arrest: Approaches for Diagnosing Cardiac Arrest by Telephone. *Zhurnal Im. N. V. Sklifosovskogo Neotlozhnaya Meditsinskaya Pomoshch' = Russian Sklifosovsky Journal of Emergency Medical Care*. 2019;8;1:60-67. doi: 10.23934/2223-9022-2019-8-1-60-67 (In Russ.).
40. Birkun A.A., Frolova L.P., Dezhurnyy L.I. *Dispetcherskoye Soprovozhdeniye Pervoy Pomoshchi pri Vnegospitalnoy Ostanovke Krovoo-brashcheniya = Dispatcher Assistance for First Aid of Out-of-Hospital Circulatory Arrest. Study Guide*. Moscow Publ., 2019. 44 p. (In Russ.).

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