

## METHODOLOGY FOR DEVELOPING SKILLS OF ACCEPTABLE RISK ON THE TOPIC "PROVISION OF FIRST PRE-MEDICAL AID TO VICTIMS FROM THE ACTION OF CURRENT" ON THE BASIS OF INTERACTIVE CASE

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**Abstract.** *At present, the problem of developing skills of acceptable risk in the study of the discipline Life safety among university students is a particularly urgent problem. As a solution, it is recommended to use practice-oriented teaching methods based on the use of modern information and communication technologies. In particular, an example of an interactive case "Providing first aid to a victim from the action of a current" was developed. The case describes a real life situation and its consequences, methods for solving the problem.*

**Keywords:** *interactive cases, development of acceptable risk skills, practice-oriented methods, acceptable risk concept, case solution algorithm.*

**Introduction.** Since the case study is an interactive method by its nature, students master the educational information, skills associated with the use of the case study method, use it as a practical guide. Case technology is based on the use in the educational process of a specially simulated real production situation in order to analyze, identify problems, search for alternative solutions and make the most optimal of them. Therefore, the potential of case technology makes it possible to turn it into a real means of forming the research competencies of a future teacher, a way to integrate their educational and research activities.

**Methods.** When choosing the developed interactive case, we were guided by the fact that in the curriculum of the discipline "Life Safety" the section "First Aid" is allocated only 2 hours. Moreover, during these 2 hours, the issues of first aid for fractures, dislocations, bleeding, drowning, frostbite, heat and sunstroke, assistance with stroke, animal bites, etc. are considered. But, it is at telecommunication enterprises that accidents caused by exposure to current. Therefore, the algorithm of behavior in case of electric shock, competent provision of first aid was chosen as a Method for developing acceptable risk skills for students of a technical higher educational institution.

It is the case method that helps to use theoretical knowledge in solving practical problems. This method helps to compensate for academic education and helps to gain practical skills in teaching the discipline "Life Safety", gives a deeper knowledge about the methods and methods of safe work and first aid.

What is the interactive format in the developed case? The method of testing on computers, a deeper study of the theoretical material allows you to fruitfully assimilate the educational material. The participants in the case become the protagonists of the situation, find a way out and develop optimal actions in the current situation. The emphasis is not on the comprehension of ready-made knowledge, but on its development.

Distinctive features of the method of interactive cases.

The solution of our cases consists of several steps:

1) Research of the proposed situation (case), in particular "Providing first aid to the victim from the action of the current."

The situational case allows you to develop the skills of acceptable risk, confirm the application of the Concept of acceptable risk in production. This case helps to learn the optimal algorithm of actions in an emergency and choose an acceptable solution. The student first passes an introductory test in order to refresh the memory of the material that was covered in the lecture on the section "Electrotraumatism".

2) At the second stage, the missing information is collected and analyzed. The student gets acquainted with a specific production situation. In the first interactive case, we consider an accident at work, in particular, an employee getting under voltage while performing work in a switchgear of a transformer substation.

3) The third stage is the study of all possible scenarios for the development of events in a given production situation, the search for a solution to the problem.

To develop the optimal solution for the algorithm "Providing first aid to the victim from the action of the current" it is necessary to answer the following questions:

- a) What kind of injury could the victim have and why do you think so?
- b) What are the consequences of it?
- c) Make a first aid algorithm for this injury, using the steps below.
- d) Make a general first aid algorithm for electric shocks.
- e) Suggest preventive measures against electric shocks.

4) The development of the best solution is achieved with a qualitative study of each stage of research. It must be remembered that the case does not have the right solution and we are looking for a set, or one most effective solution for a particular situation.

**Results and discussion.** Consider the interactive case "Providing first aid to the victim from the action of the current"

Goals:

- to acquaint students with the rules for providing first aid in case of electric shock;
- to study the signs and consequences of electric shock;
- to develop the skills of analysis and systematization of information;
- to master the application of first aid techniques in practice.

Tasks:

- develop the ability to work in a team;
- to form skills of caring for one's own health and the health of others;
- be able to apply the information received and the acquired skills in non-standard situations.

Case type: interactive - training.

Case description.

Students are offered a situation possible at a telecommunications enterprise and a set of cases containing information in relation to this situation. Students are invited to assess the situation, identify the main problem, establish its consequences and suggest solutions.

**Description of the situation:** At the power supply enterprise of the Yunusabad district, in a switchgear with a voltage of 0.4 kV in a transformer substation, when connecting the cable to the circuit breaker, the victim touched the tires with a screwdriver, resulting in a short circuit. The victim is unconscious.

**Tasks:** after reading the information cases, answer the questions, writing the answers in table 1:

- a) what kind of injury the victim could have had and why do you think so;
- b) what consequences it can lead to;
- c) draw up a first aid algorithm for this injury, using the steps below;
- d) draw up a general first aid algorithm for electric shocks and burns of the face and upper limbs;
- e) suggest measures to prevent burns of the upper limbs and face and electric shocks.

**Table 1. Method case**

Possible injury (with explanation of choice)	Consequences of injury	Algorithm for first aid for a selected injury	General first aid algorithm for electric shocks	Possible measures to prevent electric shocks
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Information cases (distributed to students for review). Information cases include a theoretical part, which is attached to the case.

**Case “First aid actions” (handed out to students)**

1. Protect a person from current exposure.
2. Call an ambulance.
3. Determination of the state of the victim from the action of the current.
4. Start cardiopulmonary resuscitation.
5. Periodically check the condition of the victim.

To solve this case “Providing first aid to the victim from the action of the current”, we first need to analyze the current situation and find the optimal solution.

Getting into the "**Beginning**" the student passes an introductory test on electrical injuries, based on the already studied lecture material. An example of one of the electrical injury tests is shown as an example.

**Electrical Injury Test.**

1. By what signs can you determine the presence of an electrical injury in a person? Choose the correct answers.
  1. Bleeding.
  2. Reflex muscle contraction.
  3. Soft tissue injury.
  4. Convulsions with loss of consciousness.
  5. Crunch in the bones.
  6. Loss of consciousness is combined with impaired respiratory and cardiac function (arrhythmia, tachycardia).

Each block of the algorithm is described in exactly the same way. If the student manages to answer 50 percent correctly, he moves on to the next section, otherwise his program throws him into the theoretical part, where he once again refreshes his knowledge and then returns to the initial testing.

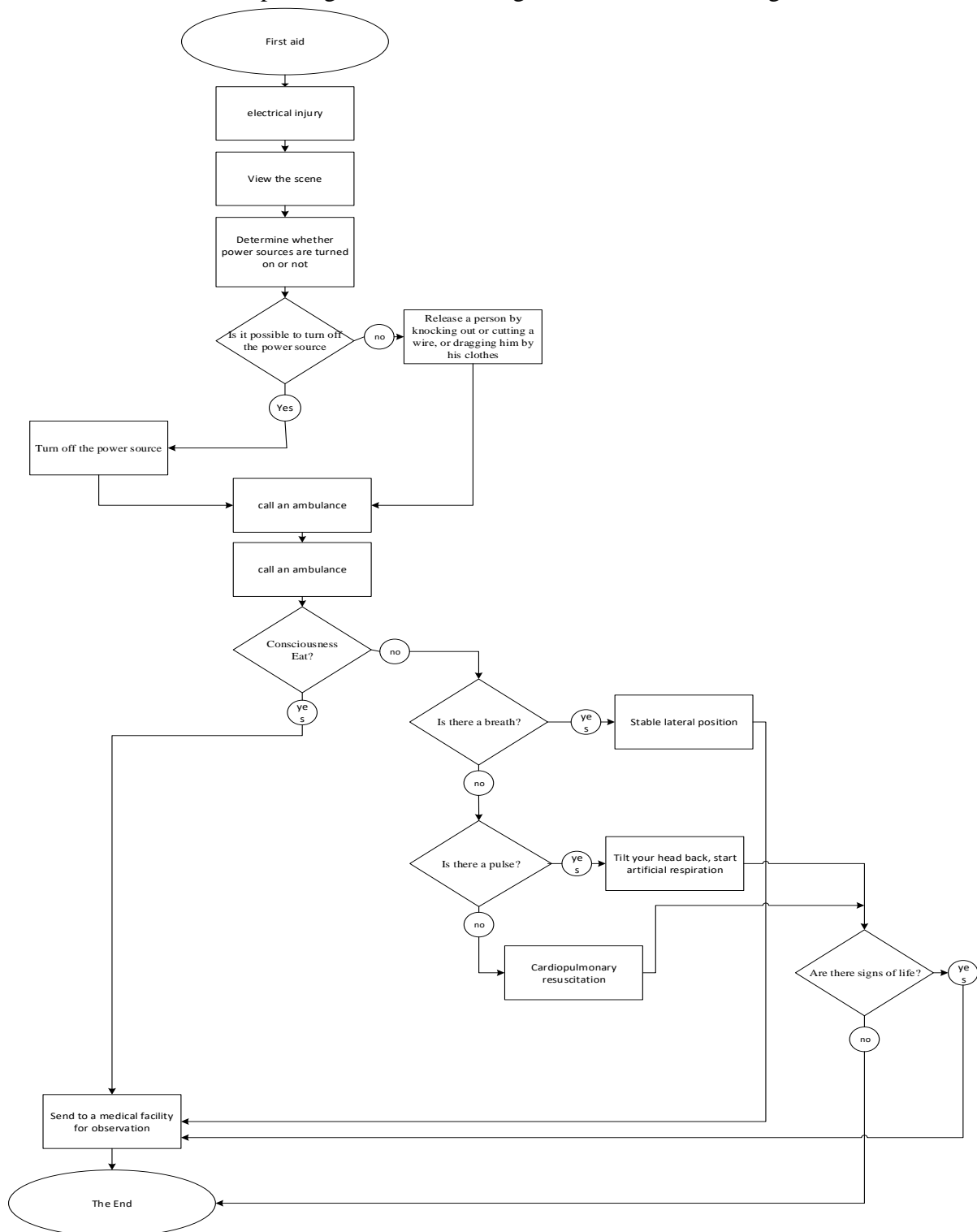
Getting into the second block "First Aid", the student gets acquainted with a specific production situation.

The third block "Electrical injury" contains testing for knowledge of the basics of electrical injury in enterprises. If the student successfully passes the test, he moves on to the next block, otherwise he returns to the development of the theory.

The fourth block of the algorithm is called "Inspect the scene" and again contains a small test on the main points that must be taken into account when analyzing an emergency at work.

In the next block "Are the energy sources turned on", you need to check whether the electrical installation is turned on or not. If the source of electrical energy is not connected, we must first call an ambulance. If the source of electrical energy is connected, then we move on to the next block.

The developed algorithm for solving the case is shown in Figure 1.



**Figure 1. Algorithm of the interactive case "Providing first aid to the victim from the action of the current."**

This block answers the question "Is it possible to turn off the energy sources" and allows you to work out the issue of optimal release of a person from the effects of current.

If the answers are chosen correctly, then the transition to the next block is carried out, if not, the student is again working on the theory.

The algorithm describes the sequence of actions for providing first aid.

The sixth block "Assess the condition of the victim" allows the student to reveal to the student the main indicators of the signs of life of the victim, on which the subsequent actions of the person providing first aid largely depend.

The block "Is there a breath" allows you to choose the optimal algorithm for subsequent actions, taking into account the condition of the victim.

The Cardiopulmonary Resuscitation block teaches methods of providing cardiopulmonary resuscitation, which is a supporting factor until the ambulance arrives. The student studies the symptoms in which the first resuscitation actions are indicated, the time during which resuscitation actions are performed and methods of providing cardiopulmonary resuscitation.

The Signs of Life block allows students to determine whether a person is still alive or not. Whether to continue CPR or not.

If there are no signs of life, we continue resuscitation until the ambulance arrives. Only a doctor can declare death, but there are clear signs that a person has died and then resuscitation can be stopped.

If signs of life appear, the person must be sent to a medical facility and the condition of the victim should be monitored.

After the end of testing, it can be considered that the student has thoroughly studied the topic "Providing first aid to the victim from the action of the current", is familiar with the methodology for providing first aid and can determine the condition of the victim by external signs.

Discussing the work of students, determining the correct actions in first aid.

Consideration of issues requiring additional analysis:

- a) What to do if it is impossible to disconnect the existing installation from the power supply?
- b) What to do if the victim is at a height?
- c) What should I do if the victim is affected by step voltage?

This case method can be used both individually and by breaking the class into groups.

**Conclusion.** It must be taken into account that the case is based on real facts and imitates a real life situation, and in the conditions of limited time, we cannot always imagine the full picture before our eyes. For the interactive case "Providing first aid to the victim from the action of the current", the best solution can be considered the return of a person to life by using artificial respiration and chest compressions. However, this situation does not have one solution and the final solution depends on many factors that we take into account when solving an interactive case.

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