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ABSTRACT

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USING A COMPUTERIZED DECISION SUPPORT SYSTEM IN THE WORK OF MEDICAL SERVICES

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In this paper, we will look at a computer decision support system and its use by medical services to facilitate first aid in emergency situations. Information and communication technologies are often offered as "technological assistants" to solve problems facing health services. They can streamline the patient care process and

do it faster and cheaper. However, a study of currently implemented technologies shows a large number of delays and errors in their work, which often leads to fatal consequences, because the health and life of the patient is often at stake. There are also financial barriers to the introduction of reliable systems in the health services, because large funds are needed to re-equip them.

The most cost-effective and reliable technology is a computerized decision support system (CDSS). It includes computer programs designed to assist in decision making. The CDSS typically combines an expert database with algorithmic or guess-based rule sets that help form the optimal solution. CDSS is gaining popularity and spreading rapidly. It is used in clinical consultations to structure the examination, collect information about the patient and synthesize it with clinical data for diagnosis and decision on the method of treatment. [1] CDSS has also been developed for use in emergency care, where it has been successfully used to quickly prioritize care. The CDSS is promoted as a system that allows staff to work more efficiently, safely and quickly, and allows the substitution or redistribution of tasks.

CDSS is also used to support telephone assistance. Operators evaluate the situation and determine the best way to provide the necessary medical care. CDSS is an expert system built on the basis of an extensive database of clinical data, constantly checked for errors and actively supplemented. A series of logic algorithms rely on the questions that the operator asks the subscriber (patient) to determine the medical supplies needed to provide care and estimate the period of time for which medical workers must reach the patient. Call operators work in a large office and sit at a desk in front of two computer screens. Each of them has a headset for receiving incoming phone calls and uses the questions that are displayed on the screen, pressing the corresponding answers and typing text information when necessary. The CDSS offers some flexibility in the wording of the questions, and also offers hints to allow operators to learn the necessary details and, using a linear algorithm, issue a recommended course of action, which may include an immediate call to the ambulance, contacting various health services or advice on self-treatment. In addition to the operators, other specialists work in the office: managers, clinical support staff and instructors. [2]

There are currently few sources of information on call handling in health services, as this is a relatively new way of providing health care. To date, most published work has dealt with the call handling process by nurses because the idea of using non-medically trained agents is new.

CDSS face many technical problems in some areas. The human body is a very complex system, so often a huge range of potential data can be used to make the necessary decision. For example, an electronic evidence-based medicine system could potentially take into account a patient's symptoms, medical history, family history and genetics, as well as historical and geographical trends in the occurrence of diseases, and also publish clinical data on the effectiveness of medicines in the recommended course of treatment for a patient. Therefore, CDSS needs powerful electronic systems for operational work. Another source of problems is that during the course of their work, the CDSS often issue a huge number of warnings, most of which are not relevant at the moment. This can cause the operator to lose potentially critical messages when analyzing the results, which in turn will lead to fatal consequences. [3]

One of the main problems associated with the CDSS is the integration of the results of new clinical trials into the database. Tens of thousands of clinical trials are published every year, each of which must be read by experts, scientifically evaluated, and only then added to the system's database. Integrating new data is sometimes difficult to incorporate into an existing decision-making system, especially when different medical articles appear to be inconsistent.

Conclusion. Evaluation of the CDSS is a process of quantifying its value, which consists in improving the quality of the system and evaluating its effectiveness. Evaluation of the CDSS depends on the purpose of the system: for example, a decision support system can be evaluated based on the consistency and accuracy of its classification of various diseases (compared to physicians or other decision support systems). The evidence-based medicine system can be assessed based on a high level of patient improvement or higher financial reimbursement to providers. Therefore, in order for CDSS to be implemented in health services, it must demonstrate error-free operation and optimization of the clinical workflow.

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