DIFFERENTIAL EQUATIONS MODELING PROCESSES
IN MEDICINE AND PHARMACY

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Introduction. The main feature of the simulation is that this method of indirect knowledge through Objects deputies. The model serves as a kind of instrument of knowledge which the researcher puts between itself and the object with which it is exploringinterest.

Aim. Describe the process modeling in medicine and pharmacy differential equations.

By studying the complex processes that occur in nature, the human body or in the course of scientific experiments, we can't always take into account all available factors, some of which are more important, and some can be ignored.

The object of study medicine - is a living organism that is a very complex system.

Materials and methods. To analyze the literature and discover the essence of modeling differential equations. Used theoretical methods such as analysis of the literature, systematization and actualization of the topic.

There are four types of models used:

1. Biological substantive models used to study general biological patterns, effects of various drugs, treatments. This type models include laboratory animals, simulated organs, cell culture.

2. Physical models - are physical systems or devices that are similar to the behavior of a subject that is modeled. They are implemented in a mechanical device or electrical circuit.

For example, the process of blood flow in large vessels can simulate electrical circuits of capacitors and resistances. It also includes technical devices that replace organs and systems of a living organism. This apparatus of artificial respiration that model lung.

3. Cybernetic model - a different device, often electronic, through which information processes are modeled in vivo. Among the most common one processes information - a control (eg, hand movement, body, etc.).

4. Mathematical model - a system of formulas, functions, equations that

describe these or other features of the object, phenomenon or process being studied. The law of gravity, Ohm's law and others. - All mathematical models of real physical phenomena. When studying dynamic processes, the mathematical model is often a system of differential equations (ie equations that contain derivatives) because only derivatives reflect changing values in the experimental system that interests us.

The value of the method is that - first, mathematical modeling allows to investigate the behavior of biological systems in such circumstances that are difficult to reproduce experimentally in the clinic, with no apparent material costs; in - the second, reduced the study; in - Third, the mathematical model facilitates solving problems with the treatment of disease.

Results and discussion. Need to use the modeling method depends on what many objects (or problems relating to these facilities) directly or impossible to investigate whether the study requires a lot of time and money. The process involves modeling: the subject (researcher), research object model, mediating the relationship knowing subject and the object known. Simulation method finds application in many sciences.

The method of modeling in pharmacy is the tool that allows the more deep and complex relationship between theory and experience. In the last century experimental method in medicine began to stumble upon some difficulty, and found that all studies revealed a number impossible without simulation.

On the basis of mathematical modeling as a means of research and data processing capabilities using the computer future doctors and pharmacists are introduced in the study courses of medical and biological physics, higher mathematics, medical informatics, information technology in medicine. To describe deterministic variable time events most frequently used differential equations. As an example, pharmaceutical and pharmacokinetic modeling process is using homogeneous linear differential   equations.

Conclusion. So today mathematical methods widely used in medicine and pharmacy, and promotes knowledge in the field of medicine, the emergence of new highly efficient methods of diagnosis and treatment, the establishment of medical equipment.