ABSTRACT

Thesis: 73 p., 6 tabl., 30 fig., 2 appends, 12 sources.

EPIDEMIOLOGICAL PROCESS, MEASLES, DISTRIBUTION DYNAMICS, MATHEMATICAL MODELING, DIFFERENTIAL EQUATIONS.

Thesis is devoted to the study of the dynamics of epidemiological processes. For this purpose, a thorough analysis of the methods of constructing differential equations describing the behavior of such processes has been carried out. The classical models of Kermac-McKendrick, Rinalde, etc. are considered, in which the mechanism of infection is carried out through the contact of susceptible individuals with the infected. On the basis of existing mathematical models, a model containing a system of ordinary differential equations was constructed and describes the process of distribution of the bark in separate children's collectives. The constructed model takes into account the latent phase, the period of infection and vaccination by age (one-and two-fold). Based on the results of the research, a software product has been developed that can be used to analyze the distribution of measles in individual children's groups. Examples of his work are given.

The software product was developed using the C # programming language, the interface - using Windows Form technology.