

ABSTRACT

The thesis is presented in 51 pages. It contains 2 appendix and bibliography of 14 references. 19 figures and 6 tables are given in the thesis.

The main objective of diploma research is to determine the optimal therapy of patients with community-acquired pneumonia by developing mathematical models and software.

In the research, there were analyse of predictional mathematical methods for clinical states dynamics for patients with community acquired pneumonia. The research considered mathematical models for analysis of changes dynamics in a certain clinical parameter and recovery in general.

A software tool was designed and a system test was carried out. The software tool was designed and developed. The calculations for prediction and analysis for patients clinical states dynamics and the recovery in general were done.

Main ideas of the thesis were published in the Proceedings of the Applied Mathematics and Computing Conference.

Keywords: mathematical model, non hospitalized pneumonia, prediction, analysis, virus, Markov model, decision tree, recovery, dynamics, clinical status.