

Research Article

A Universal Model for Predicting Dynamics of the Epidemics Caused by Special Pathogens

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Abstract. A universal model intended primarily for predicting dynamics of the mass epidemics (outbreaks) caused by special pathogens is being developed at the State Research Center of Virology and Biotechnology Vector. The model includes the range of major countermeasures: preventive and emergency mass vaccination, vaccination of risk groups as well as search for and isolation/observation of infected cases, contacts, and suspects, and quarantine. The intensity of interventions depends on the availability of the relevant resources. The effect of resource limitations on the development of a putative epidemic of Ebola hemorrhagic fever is demonstrated. The modeling results allow for estimation of the material and human resources necessary for eradication of an epidemic.