Introduction:

Inventory refers to any kind of resource that has economic value and is maintained to fulfill the present and future needs of an organization. Inventory of the resources is held to provide desirable service to customers and to achieve turnover targets. In case of uncertainty of demand, it is necessary to forecast the expected demand of an item and its variability during lead time. The consequence of uncertain demand is great risk of incurring shortages unless the inventory is managed carefully.

After an infectious disease occurs, the public officials face with many critical issues, the most important of which is how to ensure the availability and supply of emergency medicines so that the loss of life can be minimized and the efficiency of each rescue can be maximized. As such, emergency logistics is more complex and difficult in meeting the requirements for material supply and distribution, and differs from business logistics in the following aspects. First of all, a disaster usually happens suddenly and causes a surge of demand for a particular medicine during a very short period of time. Hence, the emergency materials must be transported to affected areas as quickly as possible. Second, the demand information is quite limited and varies rapidly with time. It is often very difficult to predict the actual demand based on historical data (and for many disasters, the historical data may not even exist), especially for the epidemics with a stochastic latent period. Third, time is a critical factor in emergency rescue and any delay in transportation can cause more deaths and greater losses. Finally, unlike logistics management in which all the activities are triggered based on customer orders, emergency logistics must deal with sudden and random demand for a particular type of material after a disastrous event occurs.

The particularity of various decisions pertinent to emergency rescue opens a wide range of applications of Operations Research/Management Science techniques. For example, Larson (2004) points out a number of topics related to homeland security that can be solved by Operations Research models; Green and Kolesar (2004) specifically address how Operations Research/Management Science tools can help improve emergency response operations;
Recently, an article by Altay and Green (2006) offers a summary of literature survey that identifies potential research directions in disaster operations by using Operations Research/Management Science techniques.

Under the epidemic conditions this models can be very useful for the transportation means. Further the application the study can be extended on other field also. This study has condition of having stochastic latent period. So the application the study is limited to the particular situation.