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# Strategy of control and containment of viral and other infectious diseases

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## Introduction

Globalization of the economy and the amplification of migration flows both within the same (China) and different countries (Africa and Europe) creates the possibility of multiple viruses to occupy expanded ecologic niches, producing disease syndromes in parts of the world where they had never before existed.[1-3] This situation is aggravated by fact that according to the experts, today we know of the existence of only about 1 percent of infectious agents. Nature is constantly creating new pathogens-"emerging infections"-and this potential is just inexhaustible. There is a need to pay attention to a number of factors that influence not only the emergence of new infectious diseases, but also a change of behavior has long been studied forms of infectious agents. These factors can be confidently refered climate change, anthropogenic environmental transformation of the environment, changes in the population, as a carrier, and transporter of infectious diseases, as well as the evolutionary processes occurring in the population of the pathogen of the disease. Changes in climatic conditions can lead to the appearance of natural reservoir of new viral infections. For example, soft winter and spring conditions, heavy rainfall, as a rule, become a cause of a sharp increase in the number of rodents and mosquitoes, which in turn can lead to outbreaks of infectious diseases: the frequency of epizootic Rift Valley fever in Kenya, outbreaks of West Nile fever in the United States and Russia, the outbreak of infections caused by Hantavirus Sin Nombre and Bayu in the United States, hemorrhagic fever in the territory of Russia and Kazakhstan.

In general, infectious diseases exact a greater toll from infants, young children and the elderly, and disproportionately affect disadvantaged populations in developed countries. This creates an enormous burden on the health care irrespective of their level of the economy. This situation has led to the need for control and prevention strategy of viral and other infectious diseases. This strategy includes the totality of reasonable at this stage of development of science advice to ensure the prevention of infectious diseases among certain population groups and animal populations, reducing the overall incidence and the elimination of certain infections. Systematization collected data has resulted in its structuring. Today, it is based on 3 main closely interrelated components:

a. a reliable diagnostic test systems;

b. effective preventive medicines;

c. therapeutic anti-infective drugs.[4,5]

The diagnostic component of the system is a collection of all the methods of diagnosis of infectious diseases. It helps to create a real picture of epidemiology of infectious disease by identifying patterns of spread in time, territory, age and social groups of the affected population.

This should be carried out virological and serological monitoring of infectious process for assessing the infection rate according to the agent, as well as the ability to create protective immunity. The preventive component of the system is a collection of a variety of vaccines (live, inactivated, subunit, synthetic, genetically engineered, reverse genetic anti-idiotype vaccine), which allows to carry out activities such as the prevention, and to restrict the circulation of virulent infectious diseases. The therapeutic component of the system incorporates a set of measures on break of transmission mechanism, limiting the circulation of virulent pathogen and etiotropic treatment. Each of the components of infectious disease control in recent years, is undergoing significant changes due to the development of themselves as the epidemiological processes and the improvement of technology for diagnostic, preventive and therapeutic drugs.

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None.

## Conflicts of interest

None.

## References

1. Baranowski E, Ruiz–Jarabo C, Domingo E Evolution of cell recognition by viruses. *Science.* 2001;292(5519):1102–1105.
2. Lam TT, Zhu H, Guan Y, Holmes EC Genomic Analysis of the Emergence, Evolution, and Spread of Human Respiratory RNA Viruses. *Annu Rev Genomics Hum Genet.* 2016;17:193–218.
3. Mayer SV, Tesh RB, Vasilakis N The emergence of arthropod–borne viral diseases: A global prospective on dengue, chikungunya and zika fevers. *Acta Trop.* 2017;166:155–163.
4. Das S, Shibib DR, Vernon MO The new frontier of diagnostics: Molecular assays and their role in infection prevention and control. *Am J Infect Control.* 2017;45(2):158–169.
5. De Clercq E, Li G Approved Antiviral Drugs over the Past 50Y ears. *Clin Microbiol Rev.* 2016;29(3):695–747.