Climate change and public health: adaptation strategy

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Climate change has already led to significant increase in mortality during heat waves in different parts of the Russian Federation. Another consequence of climate change is northward propagation of "tropical" infections like West Nile fever and Crimea-Congo fever. There is a tangible threat of emergence of new diseases which have never been previously observed in Russia, like Dengue fever. Northward expansion of tick borne encephalitis has been reported in Archangelsk region of Northern Russia. The epizootics of Siberian plague killed deer which were routinely buried in cattle burials in Russian permafrost belt during 18th-20th centuries. There are about 500 such burials, and permafrost degradation may disturb them.

Implementation of adaptation measures is needed to prevent negative health impacts of climate change. These measures include early warning system to inform the public about approach of extreme heat days. Such systems have been developed in USA, Canada, France, Check Republic and other counties. They convey information about the new threat to public health. For example, active and timely involvement of health services triggered by the information about the approaching heat wave in 2006 in France helped to reduce heat-related deaths by 30% [Fouillet et al., 2008]. Besides, the following actions are needed:

- Development of regional scenarios of climate change and related changes in public health endpoints.
- Strengthening of prevention of climate-dependent infectious diseases.
- Strengthening of government sanitary and epidemiological surveillance of condition of surface sources of drinking water in the territories with the most pronounced climatic changes.

- Development of recommendations and action plans for protection of population from contingencies related to climatic changes (e.g., natural disasters, extreme weather events, outbreaks of infections). These plans include early warning systems, information about emergency medical service posts, shelters, evacuation plans, etc.

- Education of public health experts with different specializations who are involved in assessments of health impacts of climate change.

- Informing the public about health impacts of climate change (dissemination of pamphlets and booklets, radio and television shows, public education programs on public schools and universities).

- Identification of the most vulnerable regions and population groups.

- Economic assessment of public health consequences of climate change, including the health burden for able-bodied population.

- Economic assessment of relationships between climate change and ability to work.

- Assessment of relationships between climate change and ecology of vectors of infectious diseases and proliferation of infectious and parasitic diseases.

- Assessment of influx of environmental pollutants (heavy metals, persistent organic substances) in the result of permafrost degradation caused by climate warming.

Russian Federation has adopted "Climatic Doctrine" which called for assessment of social impacts of climate change on Federal level. At the same time, the importance of assessments of regional-level impacts of climate change is often neglected. It is quite important to assess health risks posed by climate change in individual cities, towns and settlements, especially if these changes are registered by local weather monitoring networks. Health risks should be assessed for various age groups, social strata, ethnic communities, small endogenous peoples. Medial warnings should be used as policy instruments to mitigate negative health impacts of extreme weather events. Weather forecasts should be actively used for this purpose. Prevention of negative health impacts of climate change is an integral part of adaptation strategy, developed jointly by medical doctors, biologists, ecologists, climatologists, meteorologists, hydrologists, environmental impact assessors and climate modelers.