

Evolution of epidemic process in modern conditions

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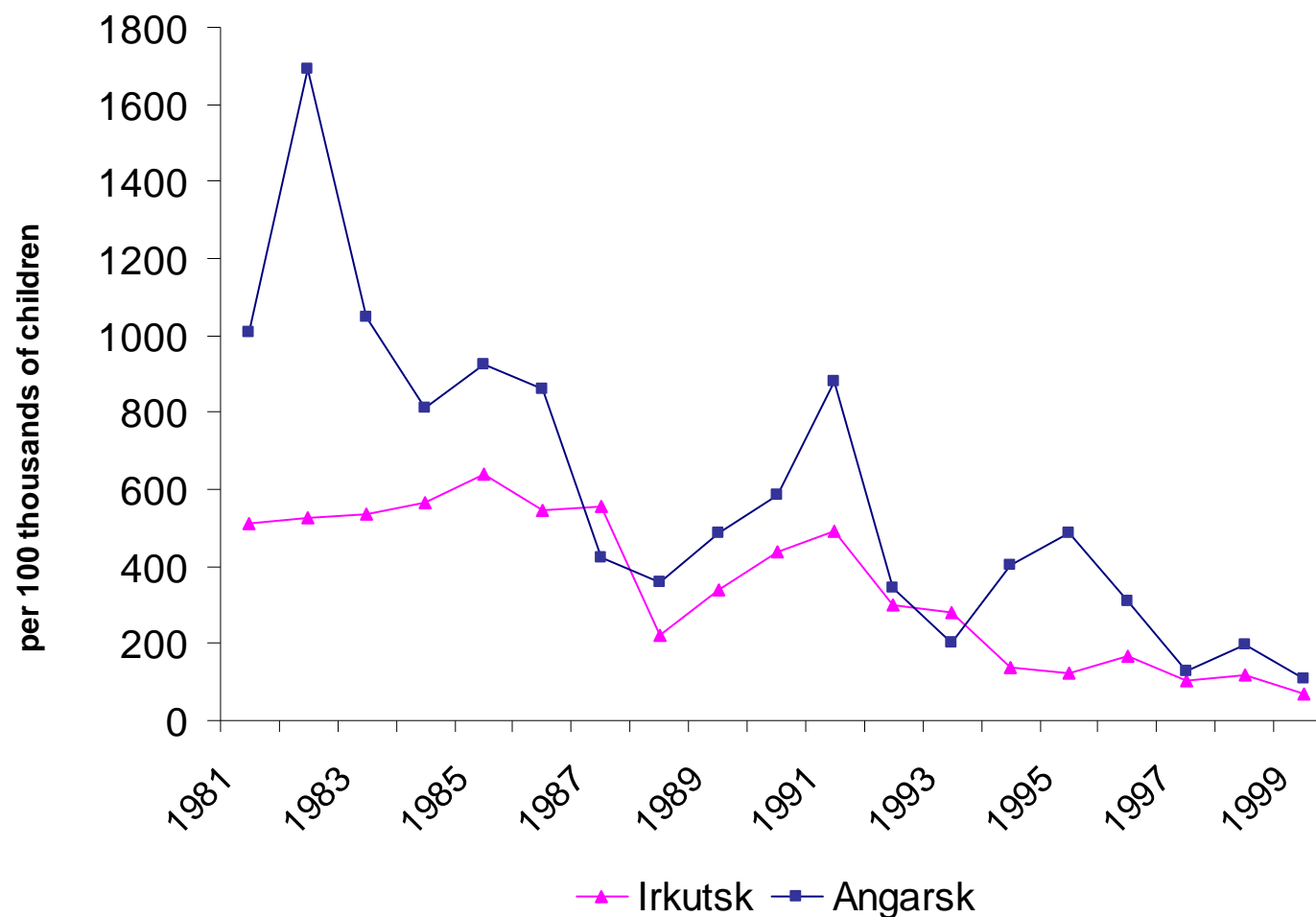
Grouping of incidence rates for infectious diseases

First group – diseases, that have pronounced differences in dynamic ranges in compared territories: common cold, rubella infection, hepatitis A, *Shigella sonnei* dysentery.

Second group – diseases, that have similar distributions of dynamic ranges in compared territories: hepatitis B, hepatitis C, *Shigella flexneri* dysentery.

Comparative analysis morbidity rates for Rubella infection and Hepatitis A and B is present before the vaccination

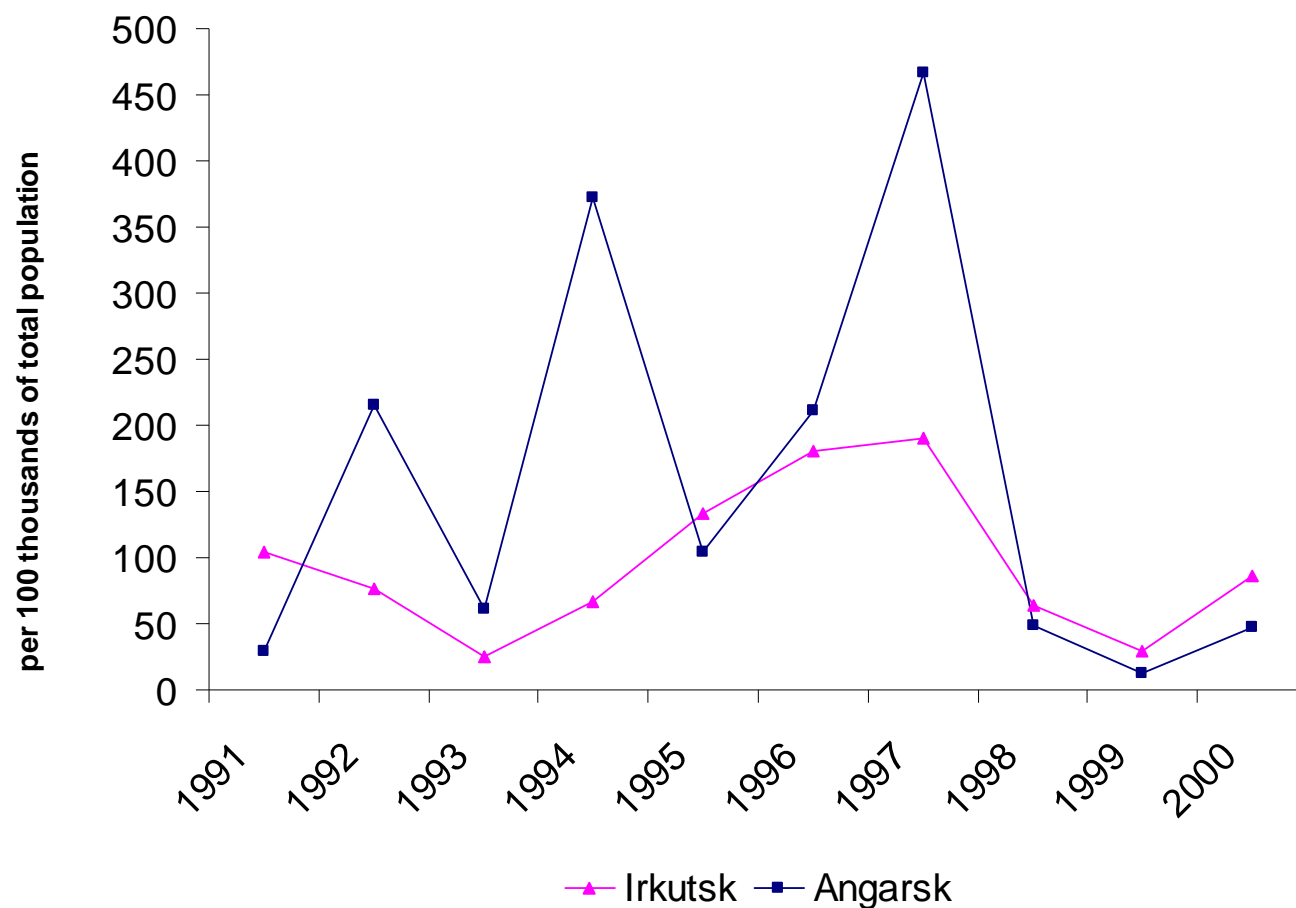
Dynamics of Hepatitis A incidence rates in Angarsk and Irkutsk



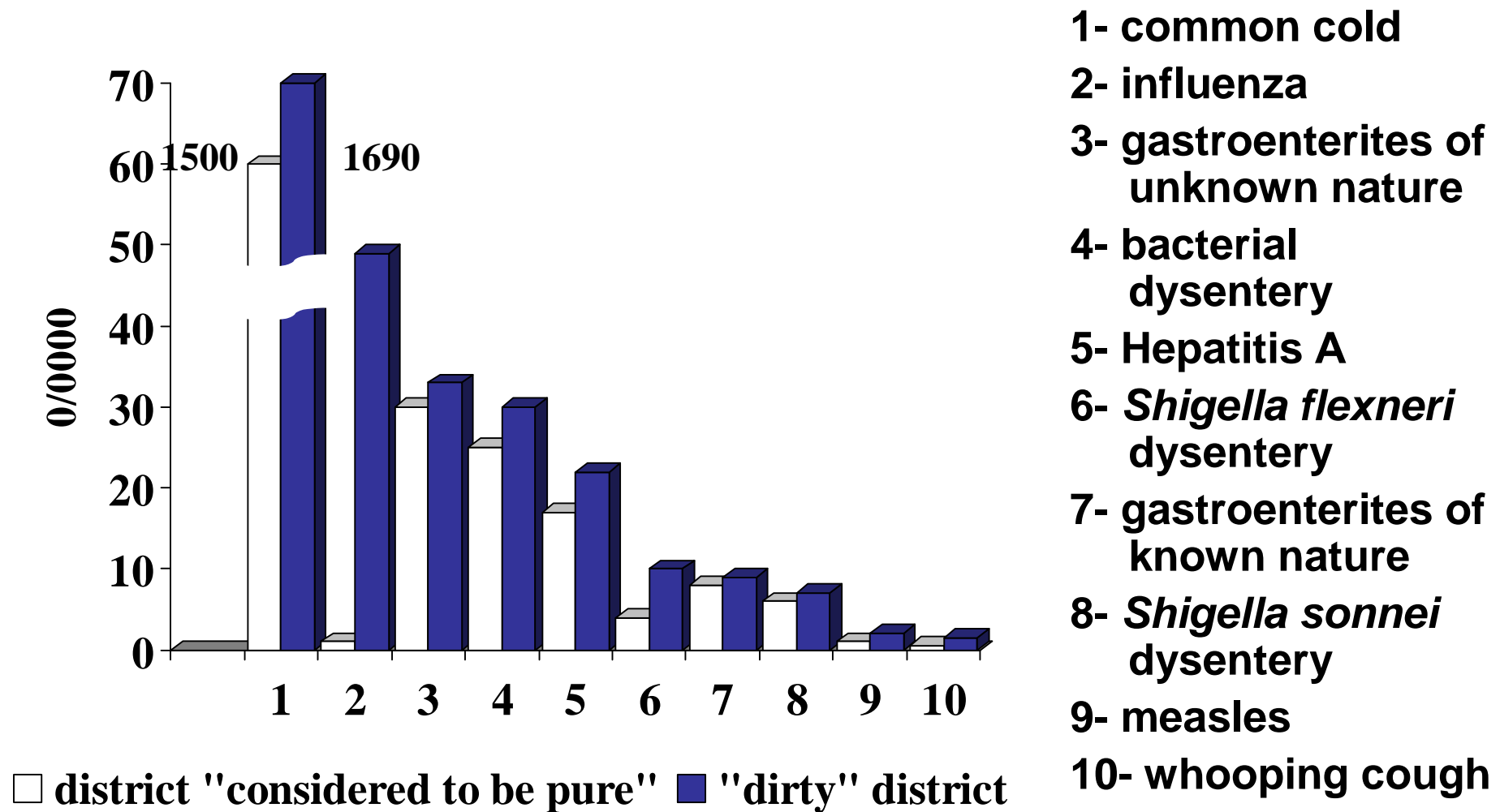
Features of the dynamics of incidence rates for infectious diseases from First Group (pronounced rhythmic manifestations)

1. Significantly higher incidence rates in areas with ecological troubles.
2. Lower stability in comparison with control area (considerably larger fluctuation on trendline).

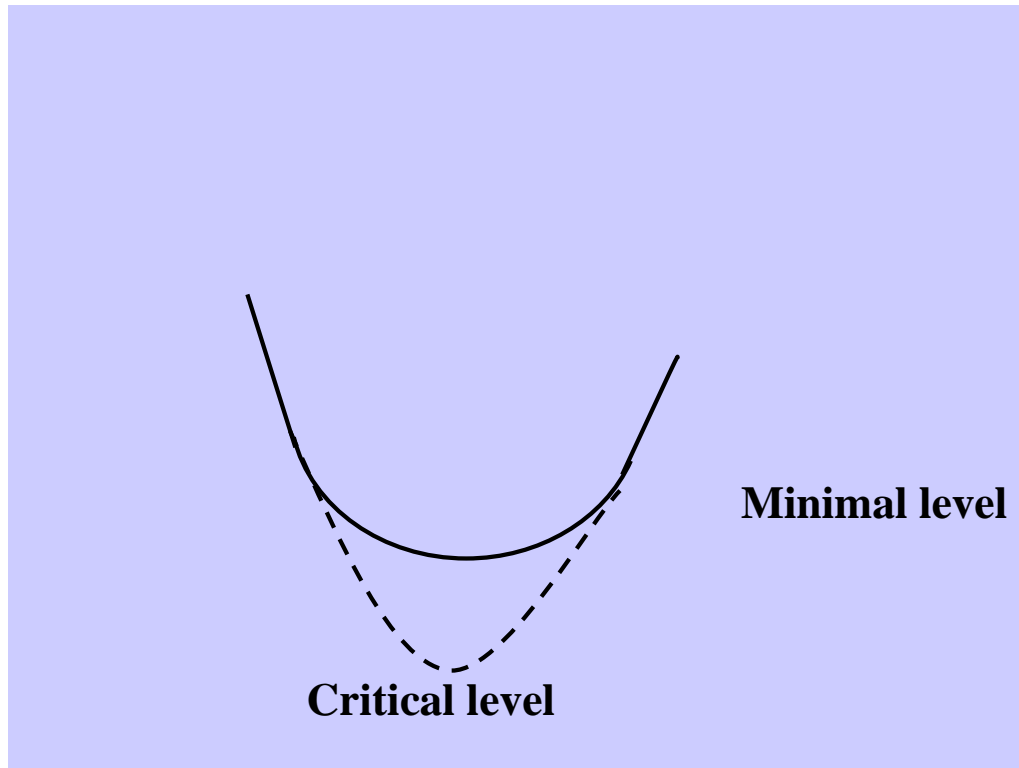
Dynamics of Rubella infection incidence rates in Angarsk and Irkutsk



Mean rates of minimal incidence among total population of different districts of Usolye-Sibirskoye town.



Dynamic of evolution of biological system being in fluctuation mode

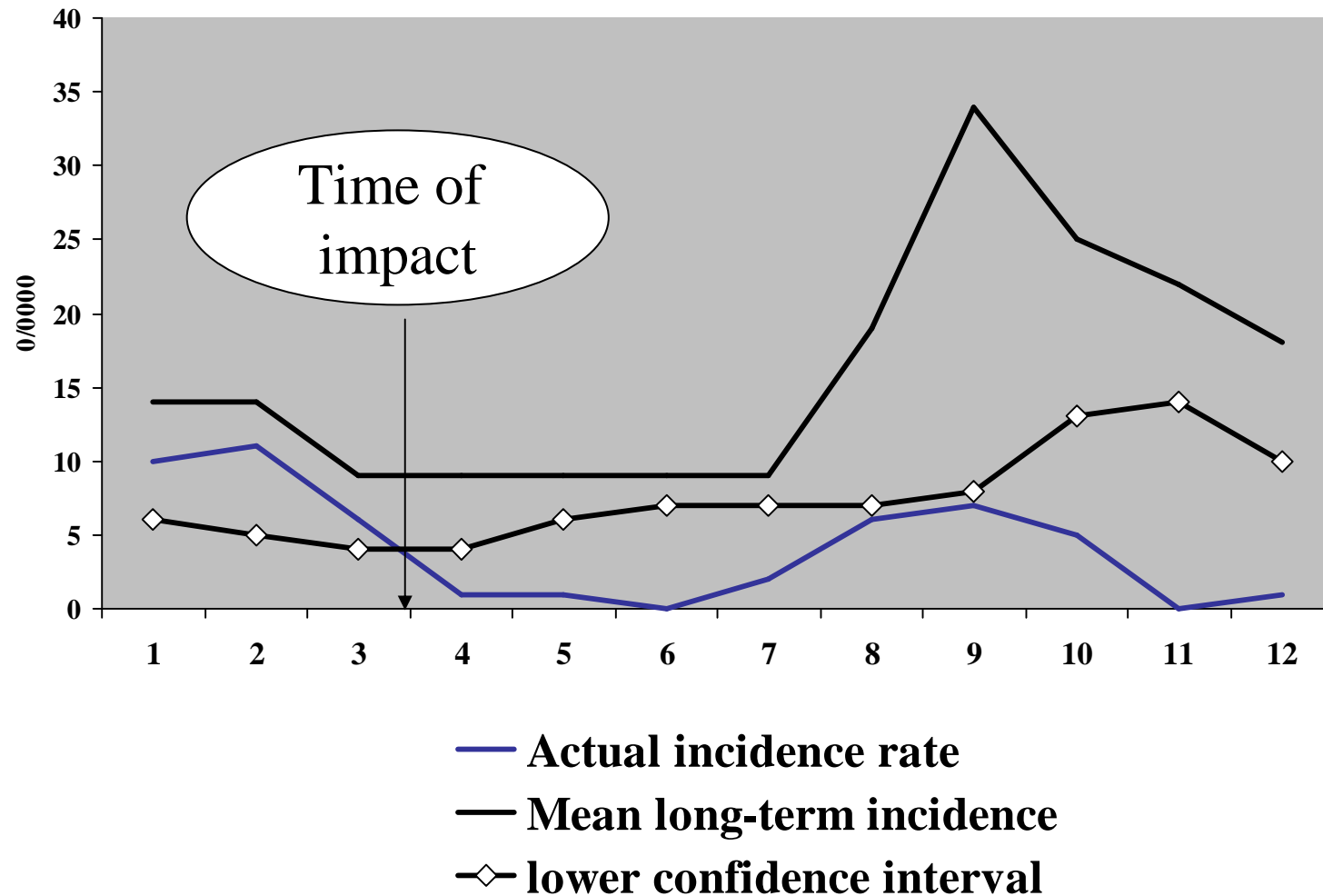


Minimal intraspecies diversity corresponds to minimal stability of biological system

The critical level lay below the minimal diversity level.
Achieving of this critical level lead to destruction of the system.

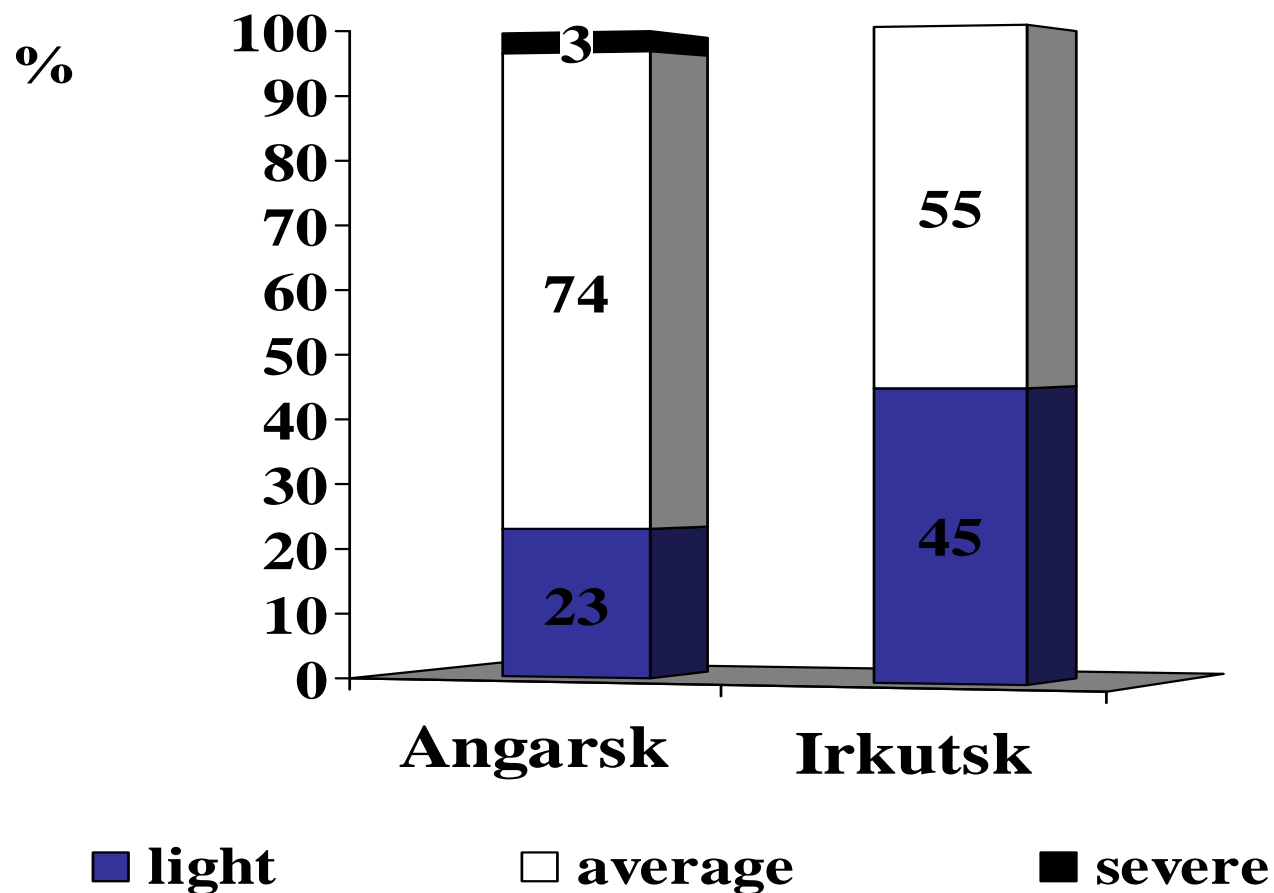
There are protective mechanisms of biological system which prevent the achieving of critical level and bring the system back at fluctuation mode

Mean long-term incidence rates and actual incidence rates in the year of experiment for *Shigella sonnei* dysentery

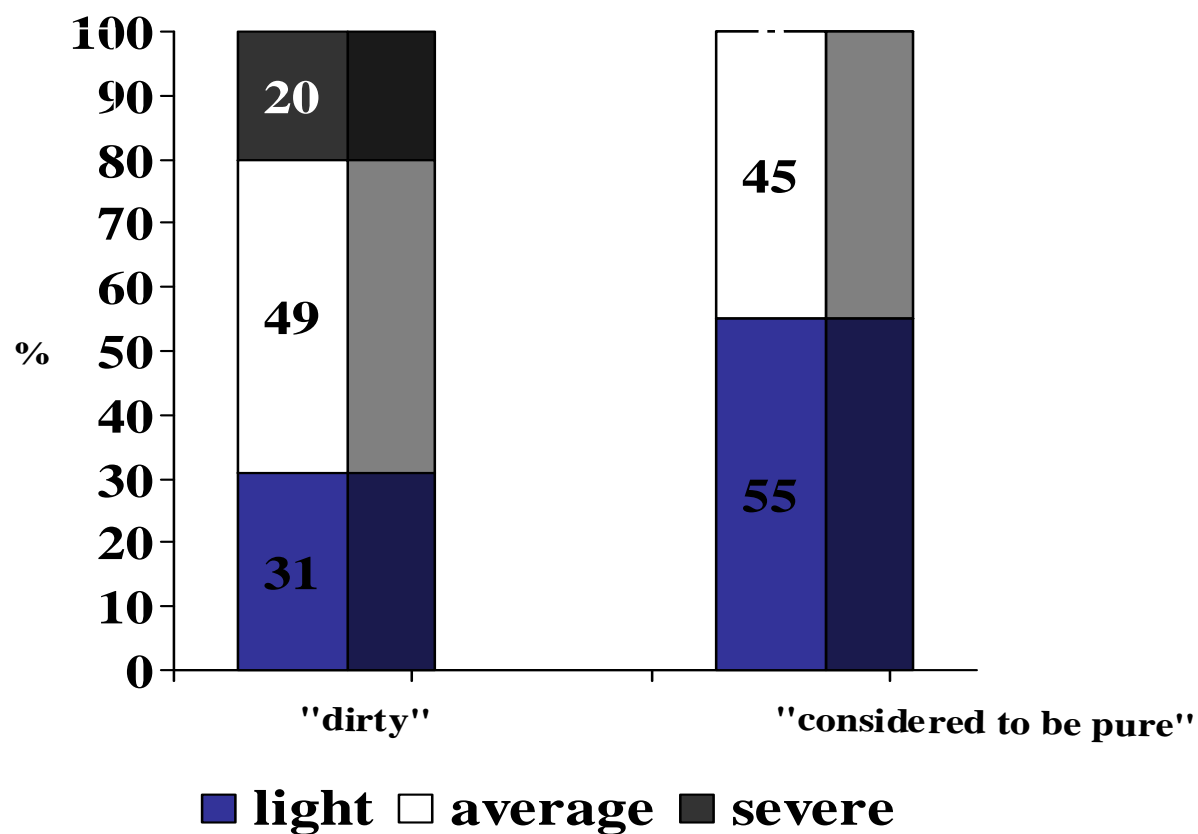


Technogenic pollution of atmosphere result in increase of severity of clinical manifestations of infection, longer disease duration, often development of chronical infection and various complications, increase of co-morbidity incidence and prolongation of recovery time.

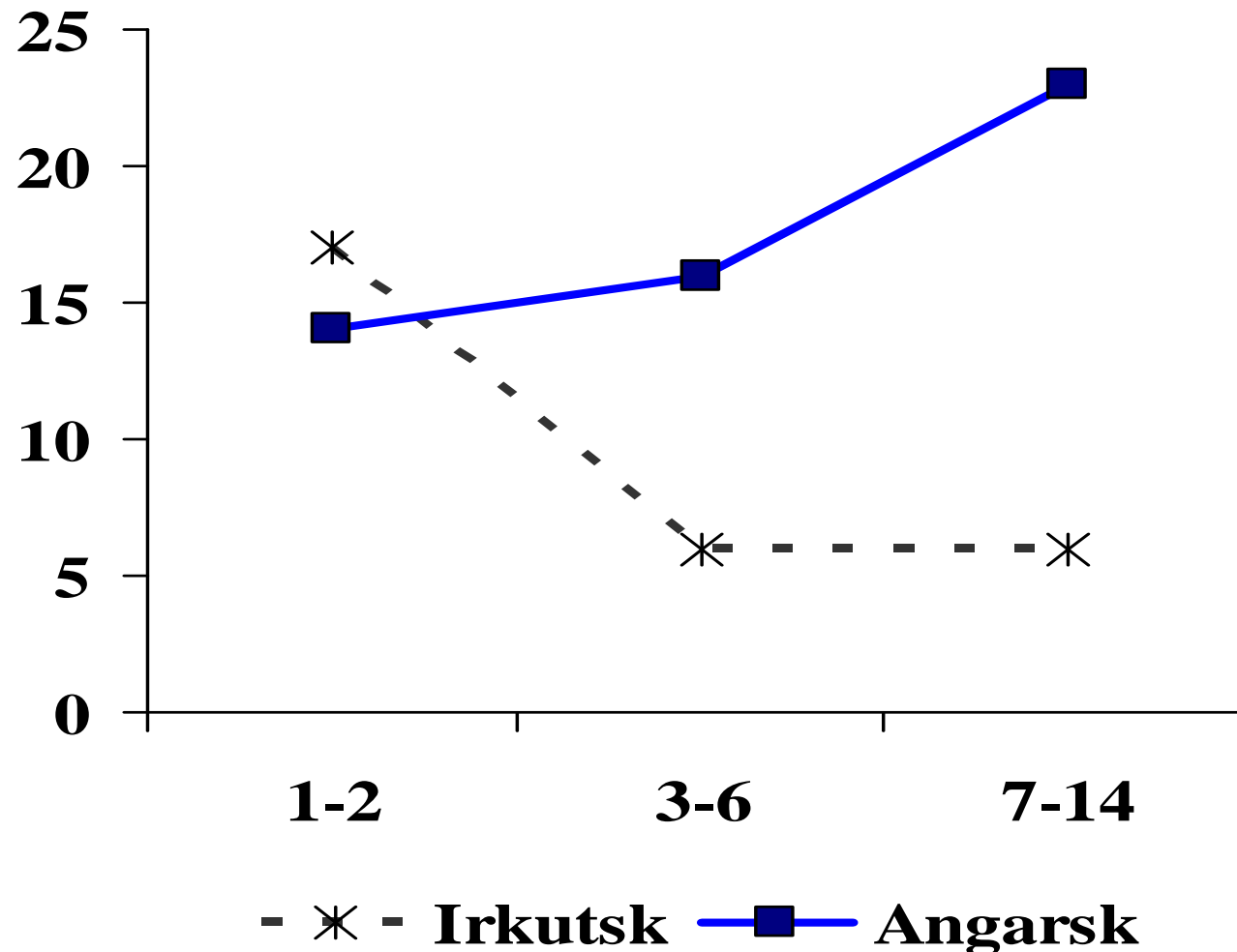
The severity of hepatitis A in children in Angarsk and Irkutsk (%)



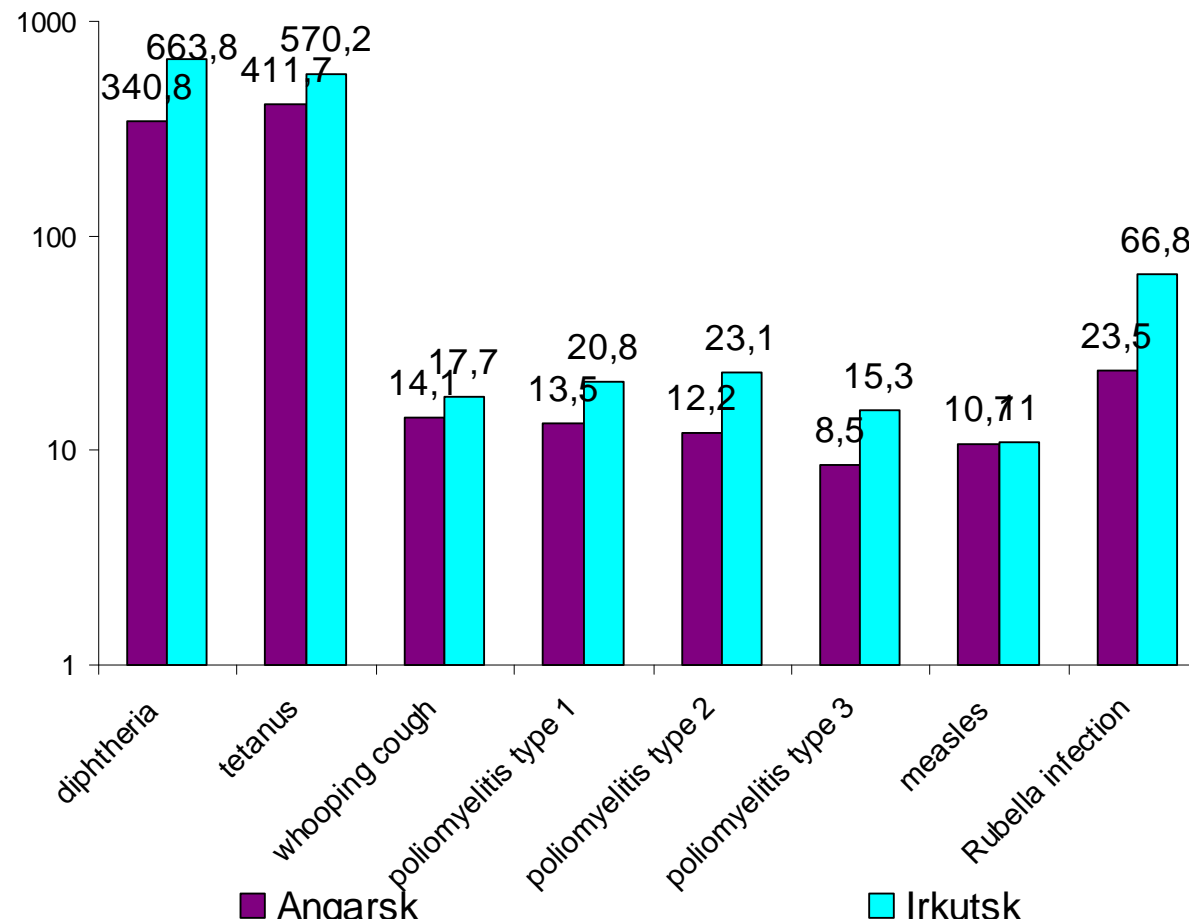
The severity of hepatitis C in children from different districts of Irkutsk (%)



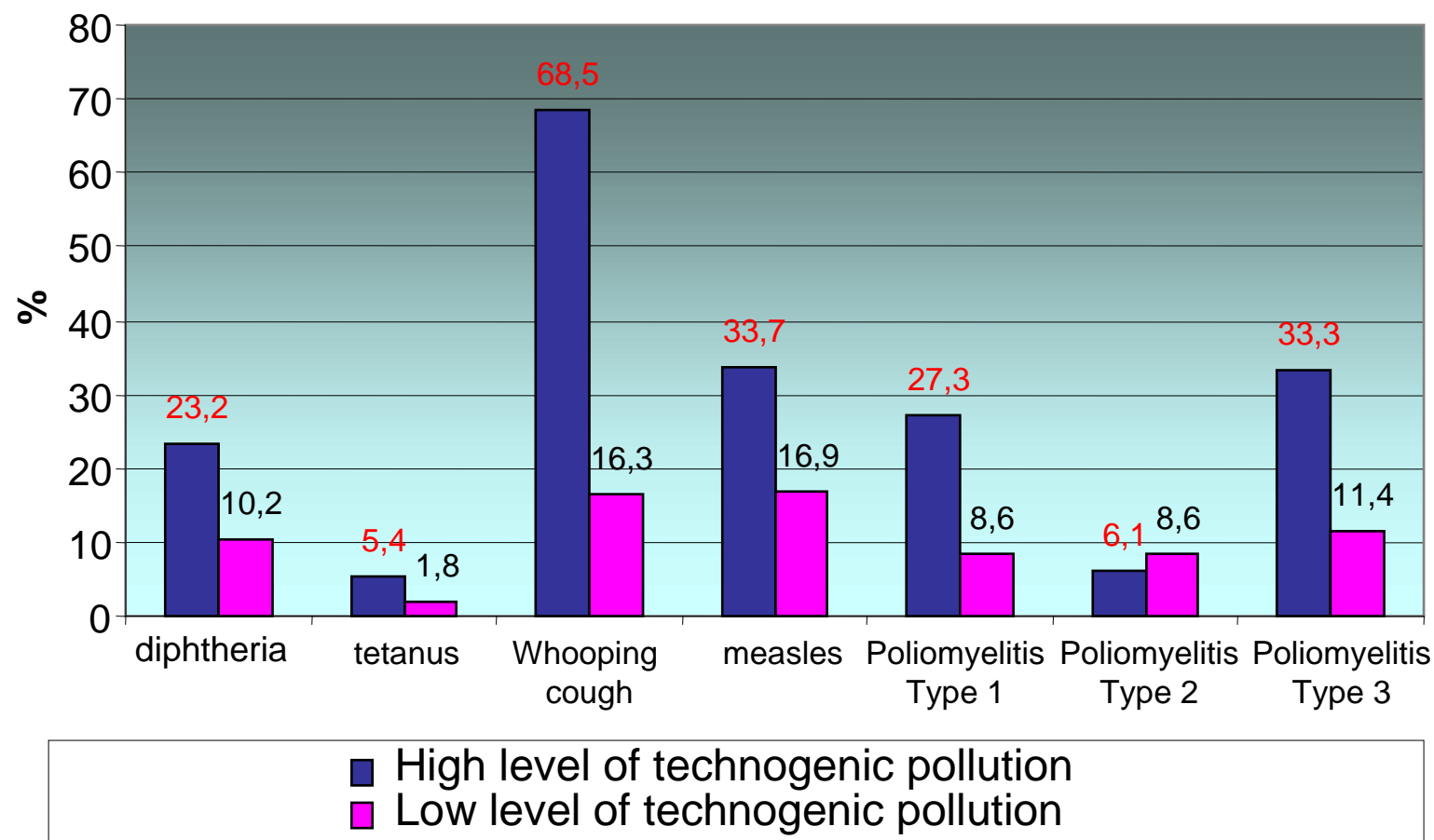
The frequency of lesion of nasopharyngeal caused by common cold in different age groups of children in Angarsk and Irkutsk (%)



Mean geometric titers of post-vaccination antibodies in children from Angarsk and Irkutsk.



Proportion of children that did not develop specific immune response after vaccination against some infections



Thank you very much!