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# Cerebrovascular mortality in seasonal and climatic conditions of Shymkent and Nur-Sultan cities

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# Summary Slide

- **Background.** *In connection with global warming, the problems of cerebrovascular diseases (CVD) in the climatic conditions of the population are of particular relevance and high social significance.*
- **Aim.** *Comparative characteristics of seasonal and climatic features of the distribution of mortality of patients with cerebrovascular diseases in the conditions of the Southern and Northern regions of Kazakhstan on the example of two cities.*
- **Methods.** *The data of the Committee of Statistics on daily mortality of patients with CVD among the adult population of Shymkent and Nur-Sultan for 2009–2018 are analysed. Climate and meteorological factors (CMF) data were obtained from «Kazhydromet».*

# Research Results

- ***In 2009–2018, there was an increase in daily mortality from CVD in Shymkent from 490 (2009) to 528 (2018), and in Nursultan from 299 to 307 cases. In Shymkent, higher mortality rates are observed in winter (1334), then in summer (1261), spring (1228) and autumn (1218). In Nur-Sultan in winter (847), autumn (846), spring (824) and the lowest in summer (738).***
- ***Mortality in the cold period (CP) (November–March) in Shymkent accounted for 2232, in the warm period (WP) (April–October) – 2809 deaths from CVD. In Nur-Sultan in CP-1426 and WP-1829 cases. In both cities, the mortality rate in CP is less than in TP of the year. However, the calculation of deaths on day 1 of each period showed that CP in Shymkent accounted for 1.49 with 1.31 in WP, in Nur-Sultan 0.95 and 0.85, respectively. Consequently, the absolute mortality rates from CVD in both cities are higher in the CP of the year.***

# Research Results

- ***There is a certain dependence of mortality rates of CVD patients on the degree of climate comfort rating (CCR), which is more pronounced in Nur-Sultan (CCR from November to February was 2.5 points out of 5 possible), while in Shymkent in July-August CCR was 3.5 points.***
- ***In both cities, mortality rates increase with age: in the young 4.7% and 5.3%, on average 19.8% and 18.7%, in the elderly 35.7% and 35.0%, senile 39.8% and 41.0%, respectively. In 3 age groups, men predominate, but the mortality rate among women in senile is twice higher.***

# Conclusion

- ***In the cities of Shymkent and Nur-Sultan, there is an increase in mortality from CVD, and in Shymkent, the mortality rate is 1.5 times lower than in Nur-Sultan.***
- ***Mortality from CVD increases with the age of patients and in the cold period of the year.***