**Using direct age-standardization of diabetes mellitus in Kazakhstan**

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The disease burden of diabetes mellitus (DM) increase in both in a global scale and in Kazakhstan. The number of people with diabetes has risen to 422 million, in 2015. Since 1980, the prevalence among adult population has almost doubled, from 4.7% to 8.5%. In the Republic of Kazakhstan in 2004-2014, the registered number of patients with DM increased more than twice: from 114,355 to 261,451 people. An estimated number of patients with DM exceeds 500 thousand people. Type II diabetes prevails and accounts for 90-95 cases out of 100 people who have diabetes.

To compare DM incidence in different regions of Kazakhstan, we need to account existing age-structure differences. To do this we have applied the method of direct standardization. The purpose of the study is to compare crude and standardized cumulative incidence of DM in different regions of Kazakhstan and demonstrate the practical value of standardization in the analysis of morbidity and prevalence.   
**Materials and methods**Age-specific rates of DM incidence were obtained from each region of Kazakhstan. The structure of the total population in Kazakhstan was used as a standard population. Age-adjusted estimates were calculated by applying observed age-specific rates to the standard population, i.e. the proportions of age groups in the standard population were multiplied by respective age-specific rates of DM and then all these products were summarized. As a results, the direct standardization eliminates influence of age difference which is considered as a confounder. To get distribution of the population by age groups, we used demographic data from the State Committee of Statistics

**Results**  
The highest values of age-adjusted cumulative incidence are observed in Mangistau oblast of Kazakhstan and in Astana city (1979 and 1885 per 100 000 population respectively), while crude rates in these areas are below the national average.

**Conclusion**The standardization of the cumulative incidence of diabetes mellitus has significantly changed the order of the regions sorted by this indicator. There are still significant regional differences that are remained after adjustment by age. The can be explained by other factors, from which the regions differ from one another, e.g. climate, nutrition habits, ethnic composition, DM detection etc. To study these and other factors, further research is needed.