

## Socio-economic transition and mortality from drowning in Lithuania: Critical points in time and place

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In Lithuania, the rates of drowning are among the highest in Europe. Deaths from drowning were responsible for 7.1% of deaths from external causes in 2009, and were among the leading external causes for years of potential life lost, particularly among males.

The aim of this study was to analyse trends in mortality from drowning and to detect demographic and urban/rural differences in cut points over two decades of socio-economic transition in Lithuania.

### Methods

Information on deaths from drowning for the 1988–2009 period was obtained from Lithuanian Department of Statistics. Mortality rates were analyzed according to urban/rural residence and sex. The Jointpoint analysis was used to identify the best-fitting points, wherever a statistically significant change in mortality occurred.

### Results

Throughout the period under investigation, mortality from drowning of Lithuanian population decreased statistically significantly both in males and females, nevertheless, considerable fluctuations have occurred in different periods of socio-economic transition. The year 1994 was found to be the cut point in mortality both in urban and rural areas, when the increasing trend reversed to the declining one. Drowning mortality rates in rural areas exceeded those of the urban by 1.6–2.5 times in different year under investigation. Throughout the period of the study, mortality from drowning in rural areas was declining by 1.8%, and in urban areas by 1.5% annually ( $p < 0.05$ ). The most positive period in terms of mortality decline in urban areas was the period of 1994–2004 for females and 1994–1997 for males. In rural areas, the most positive changes in mortality of females occurred in 1994–2003 (average annual decline was 6.6%,  $p < 0.05$ ), while for rural males there were no significant changes in mortality observed in recent years. Mortality from drowning among males was 4.5–3.5 times higher than that of females throughout the entire study period. The decline in mortality was more considerable in females, compare to males, particularly in the years 1994–2004 both in urban and rural areas.

### Conclusion

Drowning is an important but neglected public health issue in Lithuania. Despite the general decline in mortality from drowning, it remains at a very high level, particularly for males and rural populations. Possible contributing causes for this excess might be lifestyles factors, including high consumption of alcohol and increased exposure to water environment due to geographical conditions. Future progress requires sustained improvements in drowning prevention, as well as strengthening emergency response services.

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