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## A case study in how harmful alcohol consumption can be

See **Editorial** page 2171  
 See **Comment** pages 2173 and 2174  
 See **Articles** page 2201  
 See **Series** pages 2223, 2234, and 2247

In their analysis of the role of alcohol in Russian mortality in *The Lancet* today, David Zaridze and colleagues<sup>1</sup> provide a case study in how harmful to health widespread heavy drinking in a population can be. As dramatic as the results are, they are not an indicator of the total harm to the society, since they exclude many social problems from drinking and harm to people other than the drinker. The lesson has broader applicability than in eastern Europe and northern Asia alone, because many other societies—both industrialised and indigenous—have had periods with drinking patterns similar to those in Russia in the 1990s. Even in modern societies with well-developed health-care systems, pervasive heavy drinking can result in a public health crisis.

Zaridze and colleagues used a method similar to the classic US study of alcohol and mortality<sup>2</sup> that first noted a J-curve relation between alcohol consumption and total mortality, and that also established the importance of patterns of drinking. Zaridze combined death records, coded by ICD-10 (International Classification of Diseases and Related Health Problems 10th revision) between 1990 and 2001, inclusive, in three industrial cities, with interviews with family members about the amount and pattern of drinking of the decedent. 27 underlying causes of death that the investigators judged beforehand might be substantially affected by alcohol or tobacco use were compared with the aggregate of all other underlying causes of death to derive cause-specific relative risks for levels of alcohol exposure compared with the lowest level of drinking.

The study makes two main contributions. The first is to establish beyond reasonable doubt the important role of alcohol in the steep rise in mortality in Russia during the early 1990s, and a subsequent rise from 1999 to 2004. There has been general acceptance that alcohol had an important role in the fall in mortality after 1984 in the Soviet Union, because there were few factors other than the antialcohol campaign of 1985–88 to account for the change. However, among many other societal changes, the role of alcohol in the rise in mortality during the 1990s was not so clear.<sup>3</sup> Figure 2 in Zaridze and colleagues' study settles this issue, by showing how strongly the trends in overall mortality in the three cities during the 1990s were affected by deaths from causes strongly attributable to alcohol. The investigators argue, partly on the basis of their results and partly on

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Villager distils moonshine vodka in village of Negnevichi, Belarus

the effects of the 1985–88 campaign, that alcohol is of even greater importance in Russia than is tobacco as a cause of premature death, and that alcohol and tobacco account for the large gap in premature adult mortality between Russia and western Europe.

The second contribution is that this paper provides a clear picture of the relative risks of different levels of heavy drinking, in a fairly typical urban portion of Russia, for a substantial list of underlying causes of death. Alcohol consumption has been causally linked to many disease outcomes: one of the most recent counts finds more than 200 ICD-10 three-digit disease codes in which alcohol is a component cause, in addition to 30 three-digit or four-digit codes that are alcohol-specific.<sup>4</sup> The findings of Zaridze and colleagues are much as expected for diseases with well-established connections, such as liver disease, pancreatitis, and head and neck cancers. However, they also note several strong links with alcohol exposure that are not well established in published work, providing new evidence and raising new questions. In particular, their findings of a strong relation for tuberculosis and pneumonia strengthen the case for causal roles of heavy drinking in deaths from infectious disease.<sup>5,6</sup>

Alcohol also had a substantial detrimental effect on acute ischaemic heart disease other than myocardial infarction. These results, which will surprise many, are consistent with an aggregate-level study into the effects of the already mentioned antialcohol campaign, which reported a more than 25% decrease in all circulatory disease deaths in the Soviet Union.<sup>7</sup> Zaridze and colleagues claim that part of this effect on ischaemic heart disease is due to misclassification, which is plausible in view of the results of a recent autopsy study.<sup>8</sup> However, heavy binge drinking seems to be responsible for part of these effects as well: a meta-analysis<sup>9</sup> confirmed that binge drinking confers no cardioprotective effects.

The study also recorded high levels of risk associated with alcohol for ill-specified diseases, which is an important warning signal for the cultural specificity of disease coding and against the use of global rules to reallocate ill-specified diseases.<sup>10</sup> Thus, in global studies, country-specific recoding of ill-specified diseases should be applied for large countries for which substantial relevant studies are available.

In estimating that more than 50% of all adult premature deaths are attributable to alcohol, the study is

a stark reminder that most of these deaths are avoidable with more effective alcohol policies.<sup>11</sup> The findings are a wake-up call that needs to be heeded both in national policy making and at international levels as WHO moves toward the institution of a Global Alcohol Strategy.<sup>12</sup> In view of the ongoing globalisation of the alcohol market, a framework convention for alcohol control, analogous to the tobacco convention, would contribute to reducing the alcohol-attributable disease burden not only for Russia, but also worldwide.<sup>13</sup>

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