CCSA - CCLAT

Canadian Centre on Substance Abuse
Centre canadien de lutte contre l'alcoolisme et les toxicomanies

Canada's Low-Risk Alcohol Drinking Guidelines

Methodology for Synthesizing the Evidence Base that Informed their Development

How Were The Guidelines Developed?

The summary of evidence provided in *Alcohol and Health in Canada: A Summary of Evidence and Guidelines for Low-Risk Drinking*[1] (the Report) was developed by the independent Low-Risk Drinking Guidelines Expert Advisory Panel (the Panel), which was convened by the National Alcohol Strategy Advisory Committee (NASAC) and included representatives from addiction research agencies from across Canada. (See the Appendix for a complete list of NASAC members.)

Chaired by Dr. Peter Butt (College of Family Physicians of Canada), the Panel consisted of Dr. Doug Beirness (Canadian Centre on Substance Abuse), Dr. Louis Gliksman (Centre for Addiction and Mental Health, Ontario), Dr. Catherine Paradis (Éduc'alcool, Quebec) and Dr. Tim Stockwell (Centre for Addictions Research of BC). Financial and in-kind support for the development of the guidelines was provided by the organizations represented on the Panel. All members of the Panel declared no conflict of interest.

The Report made extensive use of the results of numerous systematic reviews and meta-analyses, including some critically appraised Canadian studies that assessed the relationship between level of alcohol consumption and approximately 20 disease outcomes from the published scientific literature, together with Canada's distribution of cause of death. The guidelines highlighted in the Report are intended to help members of the public reduce their risk from drinking alcohol; they are not intended to be used as clinical practice guidelines.

Objectives of the Panel

The Panel was convened to develop guidelines that would provide a basis upon which to advise all Canadians on how to minimize risks from their own and others' drinking of alcohol. Specifically, the Panel was tasked with:

- Preparing concise summaries of the evidence on how different levels of drinking are likely to affect different aspects of health and safety;

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- Evaluating the extent of risk posed by alcohol use based on systematic reviews of published studies that examined how the risk of some health or social outcome changed at different levels of consumption; and
- Providing specific recommendations for low-risk drinking guidelines for the general population, for specific populations of special concern and for drinking in situations of particular risk.

The Panel members were equally responsible for selecting and reviewing the evidence and for developing the final recommendations. Dr. Jürgen Rehm, an acknowledged international leader in generating and analyzing the scientific data needed to inform policy makers of strategies to reduce alcohol-related harm, was contracted to provide the foundational evidence for the low-risk drinking guidelines. Dr. Rehm was consulted throughout the process and provided feedback on the Report.

Research Strategy

A number of different strategies have been used in the past to develop low-risk drinking guidelines in different countries. Because low levels of alcohol consumption are associated with an increased risk of cancer and other chronic diseases as well as apparent protection against diabetes and some forms of heart disease, it was decided to examine all-cause mortality data.

The Panel accessed systematic reviews and meta-analyses that assessed the association between specific levels of average alcohol consumption and the relative risk of different diseases and injuries. Dr. Rehm and his research group at the Centre for Addiction and Mental Health were commissioned to analyze a large international database of primary studies related to the impact of alcohol on a variety of health outcomes they had assembled. At the time of the analysis, this database was considered the most comprehensive of its kind and had generated 16 published systematic reviews[2–18] linking alcohol consumption and the relative risk of death from all causes. The search for and appraisal of primary studies included in this database are described in Dr. Rehm's published systematic reviews. In addition, a systematic review was prepared on alcohol and injury by Dr. Stockwell and his colleagues at the Centre for Addictions Research of BC.[19] This latter work also led to a peer-reviewed publication.[20]

For each of the included reviews, comprehensive searches using multiple scholarly databases were conducted.

Analysis

Dr. Rehm and his colleagues[21] generated estimates of the relative risk for men and women to die prematurely from each of the 16 well-established causes of death associated with drinking alcohol. These risk levels were expressed in terms of Canadian "standard drinks" (where one standard drink equals 17.05 mL or 13.45 g of ethanol) in three tables: one for all conditions where risks were not significantly different between males and females, followed by separate tables for males and females where these risks were significantly different. The results of these analyses were simplified and colour-coded to communicate in a clear way the extent of increased risk at different levels of average daily consumption.

The Panel decided to place the upper level of the low-risk drinking guidelines at the point where overall risk of premature death was no higher than that estimated for people who were lifetime abstainers from alcohol. The data employed for this analysis were derived from a series of published systematic reviews and meta-analyses linking level of alcohol consumption to all-cause mortality. Critical appraisal of this literature revealed potentially serious methodological issues in the included primary studies, particularly with regard to how "abstainers" were defined. Thus, a single meta-analysis was chosen as the one that best dealt with the problem of excluding former drinkers from the abstainers category in estimating these risks.[22]

The above process resulted in advice on average daily consumption to keep risk of premature mortality related to alcohol consumption at acceptable limits. It did not, however, identify an upper limit for consumption on any one particular day. On this point, two systematic reviews of emergency room studies[4, 23] were examined. Critical appraisal of this literature revealed a lack of consistency in study designs resulting in different sets of estimates of injury risk. It was decided to place most weight on studies with stronger methodological designs, namely those that used controls from the general population and controlled for drinking context and other substance use. These studies suggested higher risks of injury for women compared with men for a given level of consumption when controlling for drinking context. They do not, however, indicate a threshold for drinking below which drinking is safe.

The recommended upper limit was selected by the panel based on the recognition of the following factors:

- The all-cause mortality analysis described above included risks of death from injury;
- The levels of consumption reported in those primary studies were amounts averaged across both higher and lower consumption occasions; and
- Individual drinkers can reduce risks of injury while drinking by selecting safer environments in which to drink and by taking steps to reduce blood alcohol level (e.g., by drinking alcohol with meals and pacing drinks).

In relation to advice on more specific issues such as drinking by youth and drinking during pregnancy, the Panel conducted a comprehensive search of the literature to identify all relevant systematic reviews and Canadian-specific analyses.

Peer Review

NASAC members provided feedback on two drafts of the Report for clarification and factual corrections. The Report was then subjected to a rigorous peer review by three international researchers with specific expertise in alcohol epidemiology and alcohol policy. Final decisions on the content of the Report were made independently by the Panel. The final Report was accepted by NASAC in November 2010.

Development of the Plain Language Guidelines

After the Report was completed, NASAC commissioned another expert working group, the Low-Risk Drinking Guidelines Knowledge Exchange Working Group (KEWG), to develop a one-page, plain language version of the guidelines as well as other materials to enable organizations to promote the guidelines among their clients, staff, partners and networks. Dr. Butt represented the Panel on the KEWG and ensured his Panel colleagues were consulted during the development of these knowledge exchange materials.

The plain language guidelines, *Canada's Low-Risk Alcohol Drinking Guidelines*, are based on the best evidence available in late 2010. The Expert Advisory Panel on behalf of NASAC will review them at regular intervals, yet to be determined, and in light of emerging evidence.

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