The impact of the Prevention Task Force target reductions for risky/high risk drinking on national morbidity and mortality, 2007 to 2020

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Introduction

This report estimates the potential impact of the National Preventative Health Task Force target reduction of 30% in risky/high risk drinking by 2020 on alcohol-attributable mortality and morbidity in Australia (2008). To achieve the target, current prevalence estimates (2007) of short-term risky/high-risk drinking would need to decline to about 14.3% for short-term harm and 7.2% for long-term harm by 2020.

Method

Estimates of alcohol-attributable mortality and morbidity can be made by applying the population aetiologic fraction method to unit records of deaths and hospitalisations. Application of the aetiologic fraction method has been described in detail elsewhere and will only be briefly summarised here (e.g. English et al. 1995; WHO 2000).

For diseases, the population aetiologic fraction method typically combines knowledge of the strength of the causal relationship between alcohol and disease (measured as a 'relative risk') drawn from meta-analyses of case-control and cohort studies with estimates of the prevalence of alcohol consumption at various levels within the population of interest. For injuries, case-control and cohort studies are often not readily available and the aetiologic fraction method typically relies on case series studies (direct method). Alcohol-related conditions included here included the more than 40 conditions listed in Chikritzhs et al. (2003) with the addition of type II diabetes, colorectal cancer and foetal alcohol syndrome. Relative risks for disease conditions and directly derived aetiologic fractions for injuries were sourced from the WHO *International guide for monitoring alcohol consumption and related harm* (in press). In keeping with current consensus (Chikritzhs et al. 2002), abstainers (non-drinkers) were used as the reference group for estimating low and risky/high risk alcohol-attributable mortality and morbidity. Abstainers were defined as those who self-reported as having never consumed a full serve of alcohol (AIHW 2008).

Data sources

Estimates provided by the 2007 NDSHS served as the reference point for the prevalence of alcohol consumption within Australia (see Tables 5.2 and 21.7 in AIHW 2008). Morbidity and mortality data were sourced from the National Alcohol Indicators Project. Mortality data were available from 1996 to 2006 and morbidity data from 1993/94 to 2004/05.

Estimating the effect of decreased risky/high risk consumption from 2007 to 2020 on alcohol-attributable mortality and morbidity

To estimate the impact of a 30% decline in the proportion of risky/high risk drinkers between 2007 and 2020, it was first necessary to forecast approximate annual numbers of deaths and hospitalisations associated with alcohol (i.e. alcohol-related) for that time period by extending trends apparent for preceding years. Mortality data from 1996 to 2006 was used to estimate numbers of alcohol-attributable deaths and person-years of life lost to 2020. Morbidity data between 1993/94 and 2004/05 served as the reference period for estimating numbers of hospitalisations and bed days to 2020.

Over the reference periods, allowing for population growth and changes in the age distribution, annual numbers of alcohol-attributable deaths declined by about 1.1% per year on average, alcohol-attributable hospitalisations increased by 4.1% per year on average and bed days increased by 2.8% per year.

Linear forecasts of mortality and morbidity estimates between 2007 and 2020 were based on the following assumptions drawn from the reference periods: a) alcohol-related deaths would decline at an average rate of 1.1% per annum; b) alcohol-related hospitalisations would increase at an average rate of 4.1% per annum and c) alcohol-related bed days would increase at an average rate of 2.8% per annum.

Person-years of life lost were estimated from 2006 mortality data using methods described in Ridolfo and Stevenson (2001). Forecasts to 2020 were based on the assumption that person-years of life saved (e.g. from ischaemic heart disease) and lost (e.g. from injuries, cancers) for each death would remain stable at about 6.6 and 15 respectively. (This conservatively assumes no increase in life expectancy during the forecast period.)

Forecast estimates of alcohol-related morbidity and mortality were then subject to two different scenarios regarding the prevalence of risky/high risk drinkers. The first scenario assumed that from 2007 to 2020, the prevalence of risky/high risk drinking remained constant at 2007 levels.

The second scenario assumed that instead of remaining constant, the overall prevalence of national risky/high risk drinking (both short and long term) declined incrementally, from year to year, by about 2.3% reaching a total reduction of 30% in 2020. It was assumed that the decline in risky/high risk drinking would be equally distributed by age and sex. It was also assumed that declines in risky/high risk drinkers would result from reductions in consumption rather than total cessation of drinking and that risky/high risk drinkers would move into the low risk drinking group. That is, as the proportion of risky/high risk drinkers declined, the proportion of low risk drinkers increased at an equivalent magnitude, while the proportion of non-drinkers remained unchanged. Estimates shown include mortality and morbidity due to all drinking levels, that is, low and risky/high risk consumption.

The potential impact of the 30% reduction in risky/high risk drinking was estimated as the difference between the morbidity and mortality estimates generated by the two drinking prevalence scenarios.

Estimating the effect of decreased risky/high risk consumption from 2007 to 2020 on hospital separation costs

To estimate potential economic impact to the health system from changes to numbers of hospital admissions (separations) arising from a decline in risky/high risk drinking, annual numbers of hospitalisations saved between 2007 and 2020 were multiplied by forecast estimates of the national average cost per separation. In 2006/07 the estimated national average cost per hospital separation was $3,722 (including depreciation). The 2006/07 estimate represented a 5.08% increase from the previous financial year and was in keeping with the magnitude of increasing costs from 2002/03 which averaged about 6% per year (see Table 3, CDHA 2008). In order to

forecast hospital separation costs to 2020, it was conservatively assumed that past upward trends would continue at an average increase of 5% per year from a base level of $3,722 per hospital separation in 2007 (CDHA 2008).

Results

Deaths and person-years of life lost

Past trends in alcohol-attributable deaths for the Australian population have indicated that the number of lives saved exceeds the number of lives lost, producing a net saving of lives. However, as the number of deaths due to cardiovascular and related diseases has fallen in Australia, potential savings due to apparent cardio-protective effects have also declined (Chikritzhs et al. 2003). This has in turn led to a steady decline in the net number of lives saved over time. If, however, a 30% reduction in the proportion of the population drinking at risky/high risk levels were to be achieved by 2020, declining annual numbers of lives saved would be reversed, producing an estimated 7,286 additional lives saved.

Reductions in risky/high risk drinking would also bring about substantial reductions in overall person-years of life lost, the magnitude of which is particularly influenced by relatively youthful premature deaths caused by such drinking. Should a 30% reduction in risky/high risk drinking be achieved, an estimated 94,421 person-years of life would be saved between 2007 and 2020.

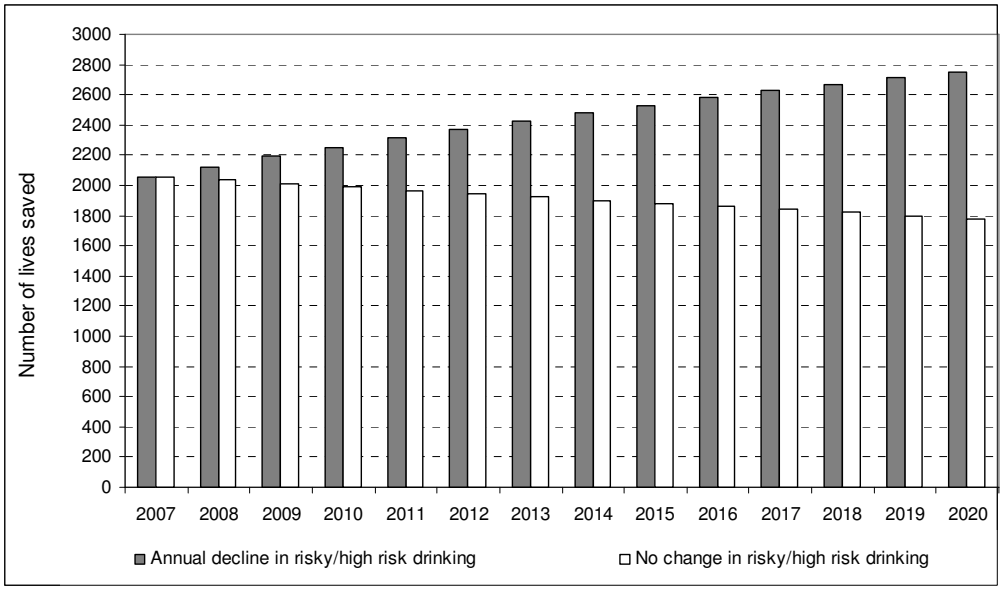

Figure 1: Estimated annual net number of lives saved attributable to alcohol consumption

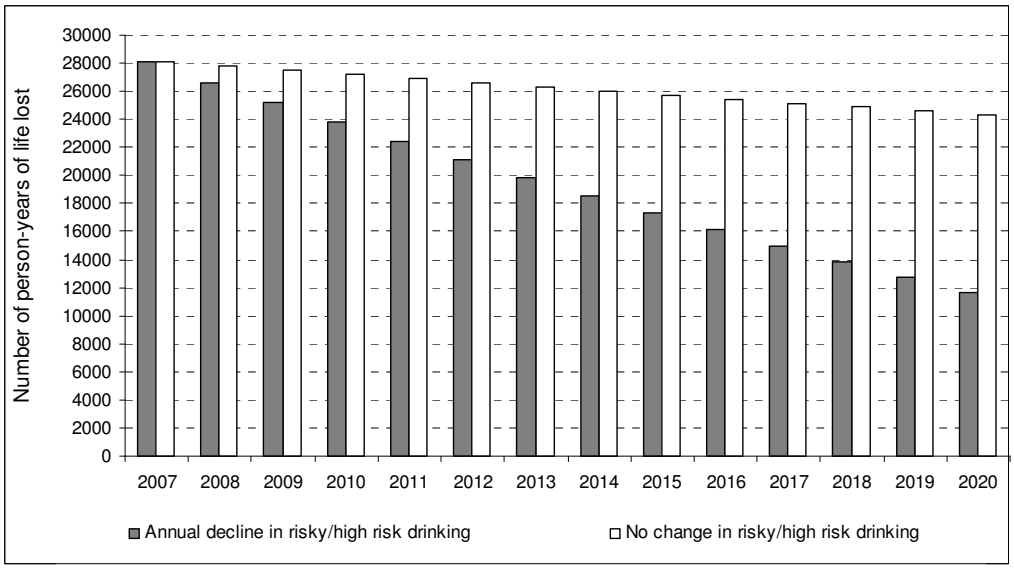

Figure 2: Estimated annual net number of person-years of life lost attributable to alcohol consumption

Hospitalisations and bed days

Alcohol-attributable morbidity has been increasing steadily for at least the last decade. A reduction in the prevalence of risky/high risk drinking of 30% by 2020 would reverse this trend and yield an estimated total saving of 327,998 fewer hospitalisations and 1,448,649 fewer bed days. The financial cost saving associated with the decline in hospitalisations would approximate $1949.2 million.

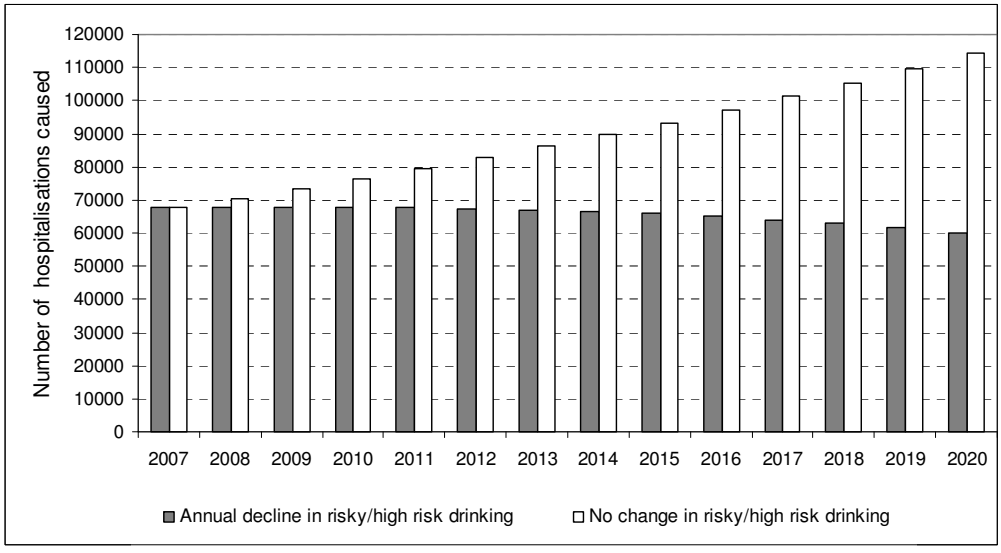

Figure 3: Estimated annual net number of hospitalisations attributable to alcohol consumption

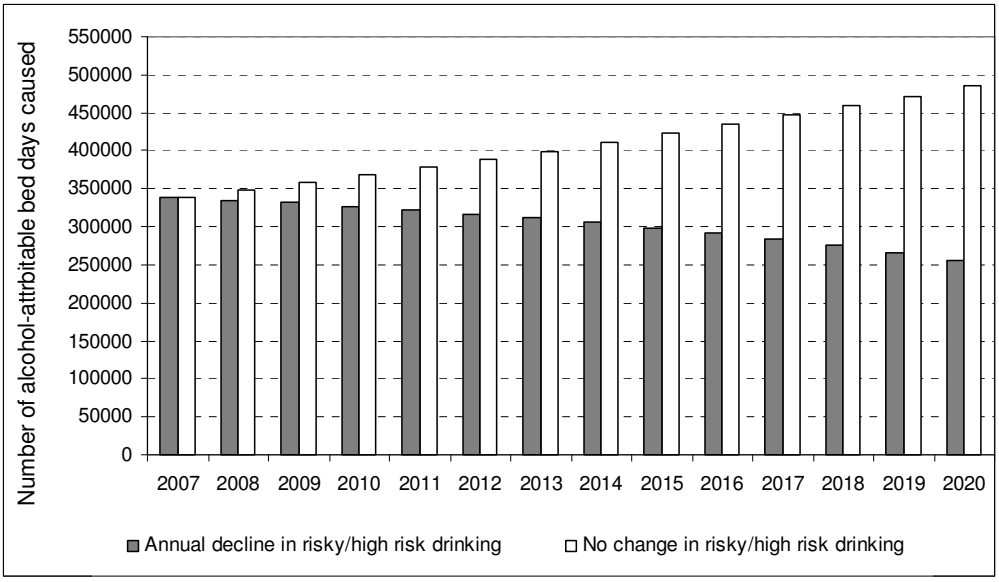

Figure 4: Estimated annual net number of hospital bed days attributable to alcohol consumption

Conclusion

To estimate the potential impact of a 30% reduction in risky/high risk drinking between 2007 and 2020 past trends were used to forecast future national levels of alcohol-attributable mortality and morbidity. Based on current understanding of the relationships between alcohol, injury and disease it was estimated that a 30% reduction in risky/high risk drinking would result in a saving of over 7,200 lives and some 94,000 fewer person-years of life lost. The impact on morbidity would approximate 330,000 less hospitalisations and 1.5 million fewer bed days at a cost saving of $1949.2 million to the national health sector by 2020.

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