

RTDs in Australia: Expensive designer drinks or cheap rocket fuel?

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Abstract

Introduction and Aims. The ready-to-drink (RTD) market is growing rapidly, and this product category has been shown to be particularly appealing to young drinkers. The purpose of this study was to identify and describe the range and availability of RTDs available in New South Wales (NSW) (including metropolitan, regional and rural areas), with a particular focus on the variations in alcohol content and pricing. **Design and Methods.** A total of 52 alcohol outlet audits were conducted across nine locations, including metropolitan, regional and rural New South Wales. Trained auditors recorded the RTDs for sale in each outlet, including product characteristics and prices for each product, and overall fridge/store space allocated to RTDs. **Results.** Across the 52 bottle shops audited, 150 individual RTD alcohol products were identified, ranging from 4.8% to 7.5% alcohol by volume and from 1.0 to 2.7 standard drinks (SD) per unit. When purchased in multipacks (typically four or six units), the cost per SD ranged from \$1.95 to \$3.70, decreasing to as low as \$1.22 per SD when on special. **Discussion and Conclusions.** The proliferation of high-strength RTDs and the substantial discounting of multipack purchases means that RTDs can no longer be seen as expensive low-strength sweet-flavoured drinks targeted at female drinkers, but as a broader product category that includes high-strength male-targeted brands. There is a need for further research to examine young people's preferences for these different product types; and consideration of policies, alongside price-based interventions, that address broader marketing strategies. [Jones SC, Barrie L. RTDs in Australia: Expensive designer drinks or cheap rocket fuel? *Drug Alcohol Rev* 2011;30:4–11]

Key words: alcopops, standard drinks, price, young people.

Introduction

Ready-to-drink alcohol products (RTDs), sometimes referred to as 'alcopops', are beverages made with a spirit or wine base and a non-alcoholic mixer, such as juice or soft drink, served in a pre-mixed package [1]. They were first introduced in Australia in the mid-1990s, then later into Europe, Great Britain and the USA [2]. Research from Europe has found that the introduction of RTDs has led to an increase in alcohol consumption among children aged 11–16 [3–5]; but that while RTDs add to pre-existing drinking related problems, they may not be linked to riskier patterns of drinking in and of themselves [6,7]. A recent review concluded that there was not yet any evidence of 'alcopop-specific' harm, but that more rigorous studies would be necessary to uncover possible associations [8].

Over the last several years RTDs have been the subject of considerable concern by advocacy groups in relation to their contribution to the problems associated with alcohol-related harm among young people [9,10]; and more recently in the popular media [11]. It has been suggested that the sweet taste, attractive design and packaging, low price—and more recently, the strong alcohol content—of these products have contributed to the rates of alcohol consumption by young people in Australia and internationally. As these drinks mask the flavour of alcohol, they serve as a bridge from soft drinks to alcohol, and are thus particularly appealing to young people [12].

While the Australian Bureau of Statistics did not collect or publish data for RTD pre-mixed spirits consumption prior to 2002, a steady increase in apparent consumption per capita has been observed from 2003 [13–15] (Table 1). Between 2003 and 2008 the

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Table 1. Apparent per capita consumption by persons aged 15 or over,^a years ended 30 June (ABS 2005, 2006, 2008)^b

	2003	2004	2005	2006	2007	2008
Beer	4.96	4.68	4.58	4.57	4.57	4.55
Wine	3.00	3.07	3.13	3.11	3.20	3.13
Spirits	1.23	1.21	1.20	1.16	1.15	1.18
RTDs	0.77	0.85	0.93	0.99	1.08	1.09
Total	9.97	9.81	9.83	9.84	10.00	9.95

^aThe ABS defines apparent per capita consumption as 'the total apparent consumption (based on the availability of alcoholic beverages in Australia) divided by the total population aged 15 years and over'. ^bData from three reports combined, data from 2003 and 2004 may not be directly comparable to later data due to changes in excise tariff.

apparent per capita consumption of alcohol remained fairly static (from 9.97 L to 9.95 L); beer decreased from 4.96 L to 4.55 L, wine increased from 3.00 to 3.13, spirits decreased from 1.23 to 1.18 and RTDs increased from 0.77 to 1.09 L [13–15]. This suggests that the increase in RTD consumption (3.2 L per capita) is not driven solely by a reduction in spirits consumption (0.5 L), but rather reflects a shift from beer (4.1 L reduction) to RTDs.

The ABS reports that the total quantity of alcoholic beverages produced in Australia has increased each year; for example between 2006–2007 and 2007–2008, an increase of 1.4% (from 168.1 million to 170.5 million litres of pure alcohol). Of this, in 2007–2008, 46% was beer, 31% wine, 12% spirits and 11% RTDs. The RTD market has continued to grow strongly with a 9% increase in the amount of RTD products available for consumption (i.e., domestic production after exports, plus imports) between 2004 and 2005 and 2005–2006; and an 8% increase between 2005 and 2006 and 2006–2007, from 16.8 million litres to 18.1 million litres of alcohol [15]. Currently in Australia the RTD market accounts for 20% of all retail liquor sales [16]; and the RTD category as a whole is growing faster than any other category of alcohol, with growth estimated at 9% per annum in 2007 [17].

The 2007 National Drug Strategy Household Survey [18] asked respondents 'What type of alcohol do you usually drink?' (respondents could select more than one usual drink). As shown in Table 2, the three most common drinks reported by female drinkers aged 17 and under were bottled RTDs, canned RTDs and bottled spirits; almost four times as many as selected bottled wine, and more than five times as many as selected regular strength beer, low-alcohol beer and cask wine. Among boys of the same age, RTDs, bottled spirits and regular strength beer were the most common, and selected by three to four times as many

respondents as bottled and cask wine. Preference for RTDs declines with age, with bottled RTDs becoming a 'usual drink' for 47.3% of women and 26.4% of men aged 20–29; and canned RTDs for 37.1% of women and 47.6% of men aged 20–29; with both types down to less than 11% of men and women aged 40+.

The NDSHS [18] also reports on usual place on consumption of alcohol for recent drinkers aged 14 and over (again, respondents can select multiple responses). These data suggest that adolescents and young adults predominantly consume alcohol bought off-premise (the focus of this paper). Among those aged 14–19 years, 36.5% report usually consuming alcohol at licensed premises and 16.7% at restaurants/cafes; whereas 67.6% report usually consuming alcohol at private parties, 57.8% at a friend's house and 51.5% in their own home. In comparison, among those aged 20–29 usual consumption on-premise is reported approximately equally to off-premise (e.g. 72% at licensed premises and 53.9% at restaurants/cafes; 58.7% at private parties, 62.5% at a friend's house and 71.8% at home).

An *Australian Standard Drink* contains 10 g (12.5 mL) of alcohol [19], and the 2009 National Health & Medical Research Centre guidelines recommend that adult men and women limit their alcohol intake to no more than two standard drinks (SD) per day to reduce the risk of alcohol-related harm over a lifetime and never more than four SD on a single occasion to reduce the risk of injury on a single drinking occasion; and that not drinking is the safest option for people under 18 years of age [19]. The NHMRC guidelines define SD as, for example, one can drink 375 mL of low-alcohol beer; 100 mL (small glass) of table wine; or three-quarters of a bottle (330 mL) of alcoholic soda. However, the educational materials distributed to educational institutions in association with the guidelines (e.g. SD posters) were not designed to keep pace with changes to the potency of RTD beverages, which have in recent years increased their variation in alcohol content. For example, a recent study of alcohol point-of-sale promotions identified common RTDs ranging from 1.1 SD (5% alcohol, 275 mL) to 2.7 SD (9% alcohol, 375 mL), with minimal price differences [20].

Promotion and pricing of RTDs

An important component of the marketing mix, particularly when targeting young people, is price. There is considerable evidence that there is a direct relationship between reduced alcohol prices and increased consumption among young people [21–24]. Both anecdotal evidence (which is easily obtainable by reading advertisements in metropolitan and community newspapers) and recent Australian quantitative and

Table 2. Preferences for selected drinks by age and gender (adapted from NDSHS 2007)

	Female (by age group)				Male (by age group)			
	12-15	16-17	18-19	All 12+	12-15	16-17	18-19	All 12+
Cask wine	3.7	7.3	9.7	15.2	6.1	8.2	7.5	12.0
Bottled wine	15.4	16.5	28.0	63.8	11.9	10.1	18.9	45.1
Regular strength beer	9.8	9.6	17.3	14.3	29.0	50.6	63.9	49.8
Low alcohol beer	5.8	3.6	6.3	8.8	13.5	12.5	5.7	22.3
Bottled spirits and liqueurs	53.3	54.4	73.9	42.4	30.6	47.6	54.0	38.7
Pre-mixed spirits in a can	59.4	57.0	60.8	21.3	36.9	56.3	60.7	24.3
Pre-mixed spirits in a bottle	49.9	68.5	68.9	25.4	25.8	29.9	33.3	11.5

qualitative research demonstrates that RTDs are priced well within the budget of young people [20,25]. A 2002 study conducted in Victoria found that minors aged 13-17 years who paid for alcohol spent an average of \$22 on their last drinking occasion [25].

In recognition of the impact of the low price of RTDs on adolescent and young people's alcohol consumption, and concerns that the introduction of the Goods & Services Tax (GST) in 2000 resulted in a slight increase in the price of premium beer, but a concurrent reduction in the price of RTDs by 20%, the Federal government introduced an increase in the tax on RTDs on Sunday 27th of April 2008. The excise rose from \$39.36 per litre of pure alcohol to \$66.67 per litre, putting this product category on a par with bottled spirits [26]; this would effectively increase the price of an 'average' RTD (330 mL at 5% alcohol by volume) by 45 cents (or 13%, based on a single unit price of \$3.50).

Given the high levels of consumption of RTDs among young people, it is surprising that there is limited research on the nature, availability and pricing of these products in Australia with which to inform debate about potential policy interventions. Thus, the aim of the present study was to examine the nature and range of RTDs in New South Wales, and specifically to examine whether:

1. The availability of RTDs (in terms of store fridge space) varies between urban and non-urban areas;
2. RTDs in NSW are predominantly low-alcohol, sweet-tasting 'alcopops' (as described in much of the literature);
3. The current pricing of RTDs makes them unaffordable for teenagers, based on available data on usual expenditure; and the packaging of RTDs in multipacks has a substantial impact on the cost per unit (and thus affordability).

Method

In order to identify and describe the range and availability of RTDs in NSW (including metropolitan, regional and rural areas), with a particular focus on the variations in alcohol content and pricing, an audit of liquor stores (including those co-located with supermarkets) and bottle shops attached to hotels was conducted using a purpose-designed audit tool. NSW is the most populated Australian state, and its demographics mirror those of the rest of the country; for example, 49.3% men (compared to 49.4% of the country as a whole), 33.1% aged under 25 years (Australia, 33.4%), and 60.8% in full-time employment (Australia, 60.7%). The research protocol was approved by the University's Human Research Ethics Committee.

A list of target outlets was compiled to facilitate the recruitment of the outlets for auditing, comprising a mixed sample of bottle shops (i.e. attached to hotels) and liquor stores (both stand-alone stores and those co-located with supermarkets). This included outlets in four metropolitan locations; two regional locations; and three rural locations (see Table 3 for exact locations). A moderate rejection rate was anticipated, which was taken into account in the initial sample selection. A list of target alcohol outlets from each of the selected areas was developed using the online Yellow Pages directory (www.yellowpages.com.au), using the search category 'liquor stores—retail', and the project officer phoned each licensee/manager and described the purpose and nature of the study. Outlets were able to refuse participation at this initial stage, and were also assured that they could discontinue participation at any stage and that no information would be provided that would identify individual outlets in any of the reports.

An audit tool was developed and piloted at a metropolitan outlet, with minor revisions based on the pilot; and was also revised and expanded on the basis of a

Table 3. Outlet types for RTD product audits by location

Area	Stand-alone liquor stores	Supermarket stores	Hotel bottle shops	Audits completed
Sydney CBD (metropolitan)	3	3	0	6
North Sydney (metropolitan)	3	2	1	6
Cronulla/Sutherland (metropolitan)	1	3	1	5
Eastern Suburbs (metropolitan)	1	2	3	6
Wollongong (regional)	2	3	1	6
Shellharbour (regional)	2	1	2	5
Shoalhaven (rural)	3	2	1	6
Dubbo (rural)	3	1	2	6
Coffs Harbour (rural)	0	3	3	6
Total	18	20	14	52

review of wholesaler distribution lists and initial auditing of the range of RTDs located in the initial audits. Utilising the audit tool, trained auditors recorded: the volume of RTDs (e.g. frequency, size, floor space, fridge space) and their positioning (i.e. location within the outlet at entrance, fridge door or counter), including the amount of fridge space allocated to RTDs; and the nature of the products (i.e. including price, packaging, volume, alcohol content, flavour, and whether soft-drink, fruit, or milk based).

Data were entered into the statistical software package, SPSS (Version 15.0, SPSS Inc., Chicago, IL, USA). Simple frequencies and descriptives formed the basis of analysis. Results were analysed to demonstrate the nature and range of RTDs available, as well as their location and distribution in different types of outlets and between geographic areas. For each of these products, the number of SD per unit, the average price per unit, the average price (and number of drinks) per multipack, the lowest observed price per multipack and the number of SD per multipack were calculated, along with the average cost per SD (based on the average multipack price for each product).

Results

A total of 112 outlets were identified and contacted across the nine regions; and 52 of the 112 agreed to participate, a participation rate of 46%. The response rate varied across locations, from a 20% acceptance rate (Sydney) to an 80% acceptance rate (Dubbo and Coffs Harbour), with the regional and rural outlets considerably more likely to agree to participate. Only one bottle shop withdrew consent on the day of the audit, and this was immediately replaced with a 'back up' store in the same location. For each of the locations, audits were conducted across a range of outlet types (stand-alone liquor stores, supermarket liquor stores and hotel bottle shops), with each location including at least two of these types (Table 3).

Table 4. Percentage of RTD fridges in store by area

Area	Average number of fridges in store	% of Fridge space utilised for RTDs
Sydney CBD	13.9	20.1%
Nth Sydney	15.3	19.6%
Cronulla	14.4	31.9%
Eastern Suburbs	8.1	35.1%
Wollongong	19.0	32.6%
Shellharbour	18.8	40.4%
Shoalhaven	5.7	41.2%
Dubbo	18.8	47.1%
Coffs Harbour	18.1	37.3%

Availability of RTDs

Interestingly, RTD products occupied 4.9 out of 14.5 fridges, on average—approximately a third of the fridge space in each bottle shop. Clear trends were evident in differences between areas. The three areas where RTD fridges made up the highest proportion of fridge space were Dubbo (47.1%), Shoalhaven (41.2%) and Shellharbour (40.4%); that is, two of the three areas that had the highest percentage of RTD fridges in store were rural areas (Table 4). In total, RTD fridges constituted 25.5% of fridges in metropolitan audits, 36.5% in regional audits and 42% in rural audits. Bottle shops attached to pub/hotels were more likely to have a higher percentage (42.1%) of RTD space in their fridges compared to both bottle shops attached to supermarkets (32.9%) and stand-alone bottle shops (29.7%).

In addition to fridge space, in 71% of cases, bottle shops had positioned RTDs on either shelves throughout the store, or in piles of cases in prominent positions on the floor. It was noted by the researchers that these cases of RTDs were often used to promote a price reduction/promotion that was currently in store, or as a general advertisement for the product with free-standing signs on top of the piles.

Range of RTDs

Across the 52 bottle shops audited, 150 individual RTD alcohol products were identified (based on the number of unique combinations of alcohol percentage and volume, with different 'flavours' not treated as separate products if strength and size were consistent). Bourbon- and whiskey-based RTD products dominated the market (44.7% of products), followed by vodka-based (23.2%), rum-based (10%), RTD shots (7.3%), and tequila-based (2.7%) products. There were 18 'other' product types.

Bundaberg Rum (cola/lime/dark & stormy/dry) was the most frequently identified RTD, available in 98% of stores. This was closely followed by Bacardi Breezers (which have multiple flavours) available in 96% of stores, Kristov Cruisers available in 94% and Jim Beam White Label cans available in 92%.

As sales figures were not publicly available, and the time limitations of the audits did not permit counting of the proportion of store space taken up by each individual beverage, it was not possible to weight the data for analysis. Thus, in the following sections we present the highest, lowest and average prices across the full range of products; and provide detailed analysis of the 20 RTD products that were the most widely available across bottle shops in all nine locations (Table 5).

Price (and packaging) of RTDs

Across the 150 products, the average price per unit when sold as a single unit was \$3.48 per SD (lowest Strongbow Viper \$1.74 per SD, highest Midori \$5.38 per SD). While the cost per unit may appear to be fairly high, with the 20 most common products ranging from \$4.18 (Kristov Cruiser) to \$6.63 (Wild Turkey), these prices must be considered in the context of alcohol strength, of which the simplest indicator is SD per unit. Alcohol percentage ranged from 4.8% (Bacardi Breezer, Ruski, Midori) to 8% (Wild Turkey), and the number of SD ranged from 1.0 (4.8%, 275 mL: Bacardi Breezers and Midori range) to 2.1 (7%, 375 mL: Bundaberg Rum OP; 7%, 375 mL: Jim Beam Black), although products were recorded which are not included in this table with as many as 2.7 SD per unit (9%, 375 mL: Bulleit Bourbon and Cola).

Furthermore, when purchased in multipacks, the price declined considerably. For example, UDLs had an average per unit price of \$4.33 when purchased individually, but this reduced to an average of \$3.17 per unit when purchased as a pack of 6 (8.4 SD in total). When sold in a multipack, the average price across the 150 products was \$2.72 per SD; ranging from \$1.46 per SD (Elevate alcohol energy drink) to \$4.36 per SD (Midori and lemonade). For the 20 most common

products, multipack price per unit ranged from \$1.95 (Cougar Bourbon and Cola) to \$3.70 (Ruski). Even lower prices were regularly observed for advertised specials, and the lowest 'special' price observed was \$1.11 per SD (Cougar Bourbon and Cola).

Discussion

The range and volume of RTDs available for consumption in Australia has increased dramatically since their introduction in 2003, with an estimated growth of 9% per annum [17]. Our audit of 52 bottle shops in New South Wales, across nine locations, identified 150 individual RTD products. Our audit results suggest that the range of RTD product types has increased since their initial introduction in 2003, when they were supposedly predominantly brightly coloured, sweet-tasting drinks targeted at female drinkers. We note that RTDs are often still described in the literature as 'highly-sweetened' drinks that are fruit-flavoured or fruit or milk-based [8,27–29]. However, we found that bourbon and whisky-based RTD products dominated the market, constituting 45% of the products identified. This finding is important as it suggests that there are two 'types' of RTDs and two target markets: sweet, colourful RTDs targeted at female drinkers, and stronger non-fruit RTDs targeted at male drinkers. This is supported by qualitative research with 95 adolescents, which found very different reasons for RTD choice among male and female adolescents (Jones *et al.* unpublished data). While 'taste' is often cited as a factor in RTD drink choice, recent research using blind taste tests suggests that it may be familiarity with the component tastes (e.g. cola) rather than sweetness per se that underlies taste preferences [28].

The promotional materials associated with the 2001 NHMRC guidelines (which were current at the time of the study) estimate that 330 mL of 'alcoholic soda' equates to one SD. However, researchers have noted an increase in the number of premium-strength RTDs offered for sale in Australia [30]. Consistent with this, of the 20 most widely available RTDs only two were one SD, and both of these were 275 mL bottles; nine were between 1.1 and 1.5 SD (300–375 mL); and nine were over 1.6 SD, with three of these 2.1 SD. Across these 20 products, the average was 350 mL and 1.56 SD; that is, while the volume of an average RTD was only 6% higher than the NHMRC guidelines the SD content was 56% higher.

It is important to note that the majority of studies which found that RTDs were not associated with greater levels of drunkenness or harm—including most of those incorporated in the review by Metzner and Kraus [8]—were conducted prior to the introduction of the high-strength RTDs. Further, there is a lack of

Table 5. Alcohol percentage and cost per standard drink (per unit and per multipack) for 20 most prevalent RTDs, ordered by number of stores selling product during audit

Product	Base spirit	Serving size (ml)	Alcohol % (SD per unit)	Average price per unit (\$)	Average price \$ (units)	Multipacks		
						Cost per SD (average)	Lowest price (\$)	Cost per SD (cheapest)
Bundaberg (Dry/Cola/Lime/Dark)	Rum	375	5.0 (1.5)	5.01	22.78 (6)	2.53	10.99	1.22
Bacardi Breezer	White Rum	275	4.8 (1.0)	4.59	13.87 (4)	3.47	11.99	2.99
Kristov Cruiser	Vodka	275	5.0 (1.1)	4.18	13.41 (4)	3.05	10.99	2.50
Jim Beam White	Bourbon	375	5.0 (1.5)	5.10	24.82 (6)	2.76	21.99	2.44
Wild Turkey	Bourbon	340	8.0 (2.1)	6.63	22.67 (4)	2.70	17.95	2.14
UDL Vodka	Vodka	375	4.8 (1.4)	4.33	19.03 (6)	2.27	14.99	1.78
Woodstock Bourbon & Cola	Bourbon	440	5.0 (1.7)	4.53	20.35 (6)	2.00	14.99	1.47
Bacardi & Cola	White Rum	375	5.0 (1.5)	4.79	21.95 (6)	2.44	16.00	1.78
Bundaberg OP Rum	Rum	375	7.0 (2.1)	6.16	30.44 (6)	2.42	19.99	1.59
Johnnie Walker	Bourbon	375	5.0 (1.5)	5.00	23.07 (6)	2.56	16.00	1.78
Smirnoff Double Black	Vodka	340	7.0 (1.9)	5.76	18.99 (4)	2.50	16.99	2.24
Jack Daniels	Bourbon	340	6.0 (1.6)	6.17	20.79 (4)	3.25	15.99	2.50
Midori Spice/Paradiso/Illusion	Fruit liqueur	275	4.8 (1.0)	4.77	14.46 (4)	3.62	9.99	2.50
Jim Beam Black	Bourbon	375	7.0 (2.1)	6.40	23.05 (4)	2.74	18.99	2.26
Ruski	Vodka	300	4.8 (1.1)	4.95	16.26 (4)	3.70	11.99	2.73
Smirnoff Red	Vodka	340	5.0 (1.3)	4.93	16.11 (4)	3.10	14.00	2.69
Southern Comfort	Bourbon	375	5.0 (1.5)	5.03	17.06 (4)	2.84	13.99	2.33
Pulse energy drink	Vodka	300	7.0 (1.7)	5.15	17.52 (4)	2.58	13.00	1.91
Jose Cuervo	Tequila	330	7.5 (2.0)	5.90	20.42 (4)	2.55	16.49	2.06
Cougar Bourbon & Cola	Bourbon	440	5.0 (1.7)	5.13	19.86 (6)	1.95	13.99	1.37

research on RTD-related harms in the Australian context; this is needed given the different cultural and social influences on drinking, as well as differences between countries in the marketing and sales of RTDs and other alcohol products.

Across the 52 bottle shops audited, RTDs occupied, on average, a third of the fridge space; which is comparable to the findings of a small-scale study conducted on the central coast of New South Wales which reported that over 40% of glass door refrigerators in bottleshops were used to display and store RTDs [16].

It was concerning to note that these products occupied a substantially greater proportion of fridge space in the rural areas, given that 12- to 17-year-olds in rural areas are more likely than those in urban areas to have ever had a drink (87.5% vs. 80.7%), consumed alcohol in the last 12 months (68.1% vs. 61.5%) and consumed alcohol in the last 4 weeks (40.9% vs. 38.8%) [31]. We note that comparisons of store types and regions are possibly confounded by the fact that hotel bottle shops constitute a slightly higher proportion of the regional (27%) and rural (33%) than the metropolitan outlets (22%). However, these differences in the sample reflect differences in the actual store types in those regions (note that we audited 80% of the outlets in Dubbo and Coffs Harbour, 71% in Shellharbour and 67% in the Shoalhaven).

Across the 150 products identified in the 52 audits, price per unit ranged from \$4.18 to \$6.63, but when purchased in multipacks this decreased to a cost of between \$1.95 and \$3.70 per SD. Of the 20 products discussed, 14 can be bought in multipacks of 4 or 6 for less than \$22.00 (average price across the 52 audits; and all 20 less than \$22.00 at sale prices).

A limitation of the present study is that we focused only on RTDs; thus, we can comment only on apparent affordability of RTDs not their affordability compared to other alcohol products. However, while previous studies have shown that price is one of the key factors influencing adolescents' drink choices [32], only 30% of a sample of 824 adolescents thought that price was a factor in the popularity of RTDs [33]. The Victorian data on average spend of \$22.00 on alcohol on last drinking occasion [25] is 8 years old; even a simple adjustment for inflation (without any consideration of other changes to youth income and expenditure levels) results in a 2008 equivalent of \$25.93 per drinking occasion (based on Reserve Bank of Australia official inflation rates). That is, following the 'dramatic increase' in the price of RTDs, the average 13- to 17-year-old (spending an average amount of \$25.93) will be purchasing somewhere between 7 and 13 SD (or as many as 18 SD if they shop around for specials). It is also important to note that the pricing of multipacks results in it being only marginally more expensive to

purchase a 4-pack of RTDs than three individual units; and significantly cheaper to purchase a 6-pack than five individual units (when on special these 6-packs are cheaper than four, and sometimes even three, individual units).

Conclusion

The RTD market in this study was predominantly made up of bourbon- and vodka-based RTDs. The rapid increase of RTDs on the alcohol market and the demonstrated ability of young people to actively search for the highest number of SD per dollar [34] is potentially a dangerous combination given the price and number of SD currently available to consumers in multipack purchases. Of the 20 products discussed above, 14 can be bought in multipacks of 4 or 6 for less than \$20, and it is important to note that the products which are traditionally seen as favourites of underage drinkers (i.e. 'lollipop drinks', such as Cruisers, Breezers and UDLs) can all be purchased in multipacks of 4 for less than \$15 or 6 for less than \$20. If an adolescent was to purchase and consume any of the pre-packaged RTDs mentioned in this research, given the estimated average expenditure, they would far exceed (at least double, and up to six times) the maximum number of SD recommended for adult men and women to reduce the risk of alcohol-related injury from a single drinking occasion. It appears that price increases on spirit-based RTDs, while an important component of alcohol policy, need to be considered in the context of marketing strategies, such as product modifications, packaging and promotion. For example, the increase in price per unit as a result of the taxation increase is more than offset by the price reduction applied to multipack purchases. There is a need to address the nature, availability and promotion of these products; and particularly to address the marketing of high-strength RTDs in multipacks at prices that facilitate, and arguably encourage, excessive consumption.

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References

- [1] Gates P, Copeland J, Stevenson RJ, Dillon P. The influence of product packaging on young people's palatability rating for RTDs and other alcoholic beverages. *Alcohol Alcohol* 2007;42:138-42.
- [2] Jernigan D. The need for restraint. *Addiction* 2007;102:1747-8.
- [3] MacKintosh AM, Hastings G, Hughes K, Wheeler C, Watson J, Inglis J. Adolescent drinking—the role of designer drinks. *Health Educ* 1997;97:213-24.

- [4] Romanus G. Alcopops in Sweden—a supply side initiative. *Addiction* 2000;95:S609.
- [5] Roberts C, Blakey V, Tudor-Smith C. The impact of 'Alcopops' on regular drinking by young people in Wales. *Drugs Educ Prev Policy* 1999;6:7.
- [6] Wicki M, Gmel G, Kuntsche E, Rehm J, Grichting E. Is alcopop consumption in Switzerland associated with riskier drinking patterns and more alcohol-related problems? *Addiction* 2006;101:522–34.
- [7] Barnard M, Forsyth AJM. Alcopops and under-age drinking: changing trends in drink preference. *Health Educ* 1998;98:208.
- [8] Metzner C, Kraus L. The impact of alcopops on adolescent drinking: a literature review. *Alcohol Alcohol* 2008;43:230–9.
- [9] Australian Drug Foundation. Submission to the 'Review of alcoholic beverages that may target young people' by the NSW Department of Gaming and Racing in Drug Issues: our views. Australian Drug Foundation, 2004.
- [10] Simmon M, Mosher J. Alcohol, energy drinks, and youth: a dangerous mix. San Rafael: Marin Institute, 2007.
- [11] Tadros E. Alcopops and soft drinks: difference? *Sydney Morning Herald*. 26 February 2008:5.
- [12] Mosher JF, Johnsson D. Flavored alcoholic beverages: an international marketing campaign that targets youth. *J Public Health Policy* 2005;26:326.
- [13] Australian Bureau of Statistics. Apparent consumption of alcohol, Australia, 2003–04 (Reissue). Canberra: Australian Bureau of Statistics, 2005.
- [14] Australian Bureau of Statistics. Apparent consumption of alcohol, Australia, 2005–06 (Reissue). Canberra: Australian Bureau of Statistics, 2007.
- [15] Australian Bureau of Statistics. Apparent consumption of alcohol, Australia, 2006–07 (Reissue). Canberra: Australian Bureau of Statistics, 2008.
- [16] Smith A, Edwards C, Harris W. Bottleshops and 'ready-to-drink' alcoholic beverages. *Health Prom J Aust* 2005;16:32–6.
- [17] ACNielsen. Australian liquor research. North Ryde: ACNielsen, 2006.
- [18] Australian Institute of Health and Welfare. 2007 National Drug Strategy Household Survey: detailed findings. Drug statistics series no. 22. Cat. no. PHE 107. Canberra: AIHW, 2008.
- [19] NHMRC. Australian guidelines to reduce health risks from drinking alcohol. Canberra: National Health & Medical Research Council, 2009.
- [20] Jones SC, Lynch M. A pilot study investigating of the nature of point-of-sale alcohol promotions in bottle shops in a large Australian regional city. *Aust N Z J Public Health* 2007;31:318–21.
- [21] Chaloupka FJ, Wechsler H. Binge drinking in college: the impact of price, availability, and alcohol control policies. *Contemp Econ Policy* 1996;14:112–24.
- [22] Grossman M, Chaloupka FJ, Saffer H, Laixuthai A. Effects of alcohol price policy on youth: a summary of economic research. *J Res Adolesc* 1994;4:347–64.
- [23] Kenkel DS. Drinking, driving and deterrence: the effectiveness and social costs of alternative policies. *J Law Econ* 1993;36:877–913.
- [24] Sutton M, Godfrey C. A grouped data regression approach to estimating economic and social influences on individual drinking behaviour. *Health Econ* 1995;4:237–47.
- [25] Hemphill SA, Munro G, Oh S. Adolescents' expenditure on alcohol: a pilot study. *Aust J Soc Issues* 2007;42:623–37.
- [26] Chikritzhs TN, Dietze PM, Allsop SJ, Daube MM, Hall WD, Kypri K. The 'alcopops' tax: heading in the right direction. *Med J Aust* 2009;190:294–5.
- [27] Gill JS, Donaghy M, Guise J, Warner P. Descriptors and accounts of alcohol consumption: methodological issues piloted with female undergraduate drinkers in Scotland. *Health Educ Res* 2007;22:27–36.
- [28] Copeland J, Stevenson RJ, Gates P, Dillon P. Young Australians and alcohol: the acceptability of ready-to-drink (RTD) alcoholic beverages among 12–30-year-olds. *Addiction* 2007;102:1740–46.
- [29] Hughes ML, Rees JS. Alcopop induced erosion: management in general dental practice. *Dent Update* 2008;35:326–8.
- [30] Munro G, deWever J. Culture clash: alcohol marketing and public health aspirations. *Drug Alcohol Rev* 2008;27:204–11.
- [31] Centre for Epidemiology and Research. New South Wales school students health behaviours survey, 2005 report. Sydney: NSW Department of Health, 2007.
- [32] Brain K, Parker H, Carnwath T. Drinking with design: young drinkers as psychoactive consumers. *Drugs Educ Prev Policy* 2000;7:5–20.
- [33] Hughes K, MacKintosh AM, Hastings G, Wheeler C, Watson J, Inglis J. Young people, alcohol, and designer drinks: a quantitative and qualitative study. *BMJ* 1997;314:414–18.
- [34] Jones SC, Gregory P. The impact of more visible standard drink labelling on youth alcohol consumption: helping young people drink (ir)responsibly? *Drug Alcohol Rev* 2009;28:230–4.