Public Health Association of Australia
submission on
Food Regulation Policy Options Paper;
the Regulation of Caffeine in Foods

Caffeine Options Paper Consultation
Food Regulation Standing Committee
C/- Food Regulation Secretariat
PO Box 4
WODEN ACT 2606
AUSTRALIA
foodregulationsecretariat@health.gov.au

Contact for PHAA
Michael Moore
CEO
phaa@phaa.net.au

17 October 2013
Contents

Introduction .......................................................................................................................... 5

Public Health .......................................................................................................................... 5

The Public Health Association of Australia ........................................................................... 5

Advocacy and capacity building ......................................................................................... 5

This submission ...................................................................................................................... 5

PHAA Position ....................................................................................................................... 6

Response to questions in the FRSC consultation paper ....................................................... 6

Question 1: Industry codes .................................................................................................. 6

Recommendation 1 ............................................................................................................... 8

Question 2: International Regulations .................................................................................. 8

Recommendation 2 ............................................................................................................... 9

Recommendation 3 ............................................................................................................... 9

Question 3: Relevant Data ................................................................................................... 9

Recommendation 4 ............................................................................................................... 10

Question 4: Food and Products Using Caffeine .................................................................... 10

Recommendation 5 ............................................................................................................... 12

Recommendation 6 ............................................................................................................... 12

Comments on section 4.10 - 4.12 of the consultation paper .............................................. 12

Recommendation 7 ............................................................................................................... 13

Recommendation 8 ............................................................................................................... 13

Question 5: Risks in consuming caffeine ............................................................................. 13

Recommendation 9 ............................................................................................................... 15

Question 6: Positive Effects of Caffeine .............................................................................. 15

Question 7: Further Problems ............................................................................................. 15

Question 8: Other Objectives ............................................................................................. 17

Recommendation 10 ............................................................................................................ 17
PHAA submission on Caffeine Options Paper

Question 9: Other Feasible Options ................................................................. 17

Question 10: Impacts on Consumers .............................................................. 18

Option 1: No changes .................................................................................. 19

Option 2: Amend the Guidelines .................................................................. 21

Option 3: Rescind the Guidelines ................................................................. 22

Question 11: Costs and benefits .................................................................. 23

Question 12: Preferred Option ...................................................................... 24

Additional comments .................................................................................. 24

Recommendations ....................................................................................... 25

Recommendation 1 ...................................................................................... 25

Recommendation 2 ...................................................................................... 25

Recommendation 3 ...................................................................................... 25

Recommendation 4 ...................................................................................... 25

Recommendation 5 ...................................................................................... 25

Recommendation 6 ...................................................................................... 25

Recommendation 7 ...................................................................................... 25

Recommendation 8 ...................................................................................... 25

Recommendation 9 ...................................................................................... 25

Recommendation 10 ..................................................................................... 25

References .................................................................................................... 26

Appendix 1: ................................................................................................. 28

Appendix 2: ................................................................................................. 38
Dear Sir/Madam,

Call for submissions on the Food Regulation Policy Options Paper; the Regulation of Caffeine in Foods

Thank you for the opportunity to comment on the Food Regulation Standing Committee's policy options paper on the regulation of caffeine in foods.

Please find attached a submission from the Public Health Association of Australia (PHAA)

If you have any questions about the submission or need any further information, please do not hesitate to contact Michael Moore, CEO, PHAA, by phone on (02) 6285 2373 or by email at phaa@phaa.net.au

Yours sincerely,

Michael Moore

CEO
Public Health Association of Australia
PHAA submission on Caffeine Options Paper

Introduction

The Public Health Association of Australia Incorporated (PHAA) is recognised as the principal non-government organisation for public health in Australia and works to promote the health and well-being of all Australians. The Association seeks better population health outcomes based on prevention, the social determinants of health and equity principles.

Public Health

Public health includes, but goes beyond the treatment of individuals to encompass health promotion, prevention of disease and disability, recovery and rehabilitation, and disability support. This framework, together with attention to the social, economic and environmental determinants of health, provides particular relevance to, and expertly informs the Association’s role.

The Public Health Association of Australia

PHAA is a national organisation comprising around 1900 individual members and representing over 40 professional groups concerned with the promotion of health at a population level.

Key roles of the organisation include capacity building, advocacy and the development of policy. Core to our work is an evidence base drawn from a wide range of members working in public health practice, research, administration and related fields who volunteer their time to inform policy, support advocacy and assist in capacity building within the sector. PHAA has been a key proponent of a preventive approach for better population health outcomes championing such policies and providing strong support for the Australian Government and for the Preventative Health Taskforce and National Health and Medical Research Council (NHMRC) in their efforts to develop and strengthen research and actions in this area across Australia.

PHAA has Branches in every State and Territory and a wide range of Special Interest Groups. The Branches work with the National Office in providing policy advice, in organising seminars and public events and in mentoring public health professionals. This work is based on the agreed policies of the PHAA. Our Special Interest Groups provide specific expertise, peer review and professionalism in assisting the National Organisation to respond to issues and challenges as well as a close involvement in the development of policies. In addition to these groups the Australian and New Zealand Journal of Public Health (ANZJPH) draws on individuals from within PHAA who provide editorial advice, and review and edit the Journal.

Advocacy and capacity building

In recent years PHAA has further developed its role in advocacy to achieve the best possible health outcomes for the community, both through working with all levels of Government and agencies, and promoting key policies and advocacy goals through the media, public events and other means.

This submission

The PHAA appreciates the opportunity to comment on the Food Regulation Standing Committee’s policy options paper on the regulation of caffeine in foods.
PHAA submission on Caffeine Options Paper

PHAA Position

In accordance with several current PHAA policy statements relevant to this issue (Public Health Association of Australia 2012; Public Health Association of Australia 2012; Public Health Association of Australia 2012; Public Health Association of Australia 2012) and for the reasons outlined in this submission, PHAA is opposed to the expansion of permissions to the addition of caffeine to foods and beverages in Australia. The PHAA also urges a precautionary approach to the regulation of caffeine in the food supply of both Australia and New Zealand.

Therefore, PHAA supports only a minor change to the current Ministerial Council policy guideline on the addition of caffeine to foods (and beverages) in order to restrict the addition of caffeine rich ingredients to foods and beverages, and the mixing of caffeine rich foods and beverages with other foods and beverages in the food supply. However, PHAA does not support any changes to the current additive permissions for caffeine (as in Standard 1.3.1). PHAA also recommends that any products containing caffeine rich ingredients (from any source) should be subject to a pre-market risk assessment on an additive case by case basis, so that the total amount of caffeine in the food supply is regulated and monitored. Such a risk assessment should also be retrospective for ingredients and foods currently in the food supply but not previously covered by Ministerial Policy or the Food Standards Code (FSC).

Response to questions in the FRSC consultation paper

Question 1: Industry codes

Can you provide any evidence about the level of compliance with and/or effectiveness of these industry codes?

PHAA does not support industry self-regulation and industry codes of practice as a form of regulation, as such self-regulation is rarely monitored by either industry or government, and is rarely successful. The Code of Practice on Nutrient Claims prepared and overseen by the Australian Food and Grocery Council is an example of the failure of such self-regulation (Williams, Yeatman et al. 2003; Cammans 2006).

Industry self-regulation and voluntary codes of practice pertaining to the marketing of unhealthy food and beverages to children in Australia, are another example of the failure of such forms of rule (Public Health Association of Australia 2012). Such regulation is usually cleverly worded so that little needs to change in order to comply, and complaints about breaches are dismissed. For example, the use of the term "primarily directed to children" in the Australian Association of National Advertisers voluntary code for advertising directed at children, means children are still exposed to the aggressive marketing of unhealthy foods and beverages via a range of media. As a result, such self-regulatory activity does not go far enough to guarantee children’s health (Public Health Association of Australia 2012).

Given such failure of industry self-regulation and industry codes of practice, it is imperative that should the government choose to continue to rely on such forms of regulation, any voluntary codes must be supported by industry-funded, independent assessment of effectiveness and compliance, with significant penalties applying for non-compliance.
**PHAA submission on Caffeine Options Paper**

Further, the labelling of caffeinated foods and beverages must also be monitored as part of the marketing and advertising for such products, with significant penalties again applying for non-compliance. It is not uncommon for legislated advisory statements to be hidden on the bottom of beverage cans or bottles, or under the fold of the confectionery packet. The font size of such advisory statements is also inadequate for many sectors of the community to actually be able to read.

The PHAA is somewhat bemused that industry codes of practice mentioned in the consultation paper (p7) suggest that retailers should "ensure advisory statements are visible on packaging and that products are not positioned the items of interest to children such as confectionery". Surely it is the responsibility of manufacturers to ensure advisory statements are legible as well as in a clearly visible location, before retailers can be in a position to ensure appropriate product displays. Further, given that many products containing caffeine (whether directly or added via guarana or other ingredients) are in the form of soft drink and confectionery (e.g. chocolate bars) it is difficult for retailers to display them where they will not attract children.

As the PHAA does not have the resources to monitor industry compliance with self-regulation, it is only possible to provide anecdotal evidence of lack of compliance with the ‘Industry Commitment’ to the marketing, promotion and consumption of energy drinks and the Industry Code for the Manufacturing and Marketing of Energy Shots. Such anecdotal evidence includes:

- In 2009, the Daily Telegraph reported (with pictorial evidence) energy drink promoters providing free samples to students of public high school in New South Wales on their way to school (McDougall 2009). This was in blatant defiance of the ban of such products in NSW schools.

- Recent perusal of the “V” product website and Facebook pages also provided the following promotions:
  - In Nov/Dec 2012, the Facebook site promoted a new 1.2L share bottle on 4 separate occasions. The majority of over 200 comments responding to the promotion, expressed a favourable response to the product, with a large proportion of comments expressing an unwillingness to share such a product because the commenter wanted the entire amount for themselves (see below the following picture for examples of some of the comments). Whilst the 1.2 L bottle is no longer available, 750 mL resealable cans are now available and are marketed as enabling customers to consume some of the product now and some later.

  - **Shane Warren** share? not likely!
  - **Laiken Green** Shot Gun... But Sharing? I’ll Pass That!

---

20 Napier Close Deakin ACT Australia, 2600 – PO Box 319 Curtin ACT Australia 2605
T (02) 6285 2373   F (02) 6282 5438   E phaa@phaa.net.au   W www.phaa.net.au
PHAA submission on Caffeine Options Paper

- Robert Adams I agree, I drink a whole 710 ml in 10 minutes if that. Several a day might I add 1.2ltr will just stop me buying so many cans...
- Honey Wetere I wouldn't share, it would be all mine
- Orsan Sabah Sharing? Just had a whole bottle to myself.
- Kaitlyn Wayward Kitty Lewis "For sharing"... Riiiiight...

- A more recent addition to the Facebook site is this picture of a water fountain modified to deliver V instead of water to the drinker. This image is clearly meant to be a school based water fountain.

- Further examples of both products, and product promotions, that are currently available in the international marketplace are presented in Appendix 1.

Recommendation 1: It is imperative that should the government choose to continue to rely on such forms of regulation, any voluntary codes must be supported by industry-funded, independent assessment of effectiveness and compliance, with significant penalties applying for non-compliance.

Question 2: International Regulations

Are there any international regulations of relevance that have not been provided here or in Appendix 2? If so, please provide references.

The PHAA is unaware of any other international regulations of relevance. However, the PHAA strongly recommends that the FRSC and the Ministerial Council wait for, and give due consideration to, international reviews on the safety of caffeine that are currently underway. For example, the review by the US Food and Drug Administration in conjunction with the Institute of Medicine, and the European Food Safety Authority review of the risk of caffeine consumption.
The PHAA also believes that FRSC and the Ministerial Council would be unwise to finalise a new policy before the National Nutrition Survey data on caffeine becomes available. It is understood that this will be released in the first quarter of 2014.

Given that Codex is currently silent on the issue of caffeine, it may also be pertinent for Australia and New Zealand to recommend work commence on an international standard in the near future.

The PHAA would also like to recommend the Ministerial Council adopt the "high caffeine content" labelling regulation currently in use by the European Union, as well as the maximum limit the total caffeine per litre and per container proposed by Health Canada, as a feature of any possible change in Australia and New Zealand regulations regarding caffeine in foods and beverages. An indication on the label of caffeine containing products of the maximum recommended daily consumption of caffeine for adults would also be highly beneficial for the public.

Recommendation 2: Wait for, and give due consideration to, international reviews on the safety of caffeine that are currently underway as well as the National Nutrition Survey data on caffeine.

Recommendation 3: Adopt the "high caffeine content" labelling regulation currently in use by the European Union; the maximum limit the total caffeine per litre and per container proposed by Health Canada; and an indication on the label of caffeine containing products of the maximum recommended daily consumption of caffeine for adults, as a feature of any possible change in Australia and New Zealand regulations regarding caffeine in foods and beverages.

Question 3: Relevant Data

Are there any other relevant data not provided here? If so, please provide details and references

It is assumed that the data and references required under this question relate to both sections 4.6 and 4.7 of the consultation paper. These sections discuss the changing presence of caffeine in the food supply, as well as changes in volume and types of products containing caffeine.

It is also assumed that FRSC is aware of the work conducted on behalf of the New Zealand Ministry of Primary Industries recently circulated by Food Standards Australia New Zealand (FSANZ). This report contains data pertaining to the caffeine content of foods and beverages that have guarana as an ingredient (Thomson and Jones October 2013).

With respect to what is presented in section 4.6 of the paper, PHAA would like to suggest that iced coffee milk drinks be added to Table 1d (as well as a relevant sugar content table in Tables 2a-2d in section 4.9 of the paper), as this type of beverage is a significant source of both caffeine and sugar for some sectors of the population. PHAA would also like to suggest single shot coffees be included in Table 1d, as it is highly unlikely the majority of persons drinking coffee request a double shot. Also, the
PHAA submission on Caffeine Options Paper

Caffeine content per volume of these double shot coffee drinks is unclear given the 285 mL or 300 mL quantities indicated in the first column and the per 100 mL in the second column.

With respect to the data that is presented in section 4.7 of the paper (and again the data presented in section 4.10) PHAA would like to comment on the way the data from relevant studies is used and reported. Much of the data presented by FRSC considers the consumption of caffeine per quantity per person per year, across the general population. It is inappropriate to assess the data in this manner, as like alcohol, there are many subgroups of the population, as well as significant numbers of the general population, that either do not consume tea, coffee or other traditional forms of caffeine at all, and/or do not consume it via the products that are of particular concern to the community, such as energy drinks and energy shots. Therefore, when sales and consumption data are considered, they need to be assessed by age and gender, as well as by the usual source of caffeine for each population group. Providing figures per person across the whole community, only serves to lower the average consumption among persons that actually consume caffeine, especially those that consume significant quantities. Further, it does not adequately investigate the sectors of the community that consume excessive amounts of caffeine, or those that inadvertently consume caffeine via unfamiliar sources, or “vulnerable groups” that are of particular concern to the community and noted in the current Ministerial Council Policy.

FRSC also needs to put considerable effort into investigating evidence of the addictive nature of caffeine when reviewing this policy. This is especially important given the number of food and beverage products currently available in international markets as indicated in section 4.7 of the consultation paper, and in Appendix 1 of this submission. The reason for the addition of caffeine to products such as chewing gum, confectionery, “baking sugar”, hot sauce and potato and corn chips, can only be for its addictive nature, in order to ensure continued and ever-increasing sales and profits. These products do not require caffeine for flavour, or any other purpose, as is made quite clear by the marketing language associated with the products presented in Appendix 1.

With respect to sports foods and beverages containing caffeine, it is also important that FRSC determine how much of these products are used by the general public as opposed to high level athletes. The promotion of these products via well-known sports teams and personalities make them more attractive to many sectors of the community, who often consume them unnecessarily.

Recommendation 4: Ensure that Australian Consumption data are presented in the same way as the New Zealand data to illustrate not only mean intakes but also, and more importantly, intakes of high consumers and those with intakes above the adverse effect level.

Question 4: Food and Products Using Caffeine

Can you provide any additional information about the use of caffeine as an ingredient in foods and/or the formulation of products using caffeine or caffeine containing ingredients. If so, please provide details.
PHAA submission on Caffeine Options Paper

The PHAA does not collect data on the addition of additives to food and would expect, in light of this policy options paper being released, that responsible departments and agencies would have accurately described the use of caffeine and caffeine containing products in the Australian and New Zealand food supply. If accurate and timely data are not available, this signals a major limitation with our food regulators and food enforcement agencies, and points to a lack of confidence in these groups being able to monitor regulations and/or codes of practice resulting from a potential move to a more liberal policy guideline on caffeine. It would also mean that decisions relating to this policy guideline will be ill-informed, irresponsible and not able to be risk-based.

Despite not being able to provide any data, PHAA would like to raise some concerns about the sections of the consultation paper (4.8 and 4.9) relating to this question.

Tables 2a-2d should also include the energy (kilojoule/calorie) and acid (pH) content of the products listed. This is because it is not only the sugar content of these products that is of concern for the health and well-being of the population, but also the number of calories consumed and the pH content of each product. There are known links between excess sugar and calorie consumption with chronic health consequences such as obesity, heart disease, diabetes and some cancers. Also, the link between acidic foods and beverages with dental caries, dental erosion and other oral health problems is well known (as is discussed further under Question 5).

In section 4.8 of the consultation paper, it is stated that along with energy drinks, soft drinks, snacks, sports foods and beverages currently contain guarana. This is contradictory to both current Ministerial Policy, and the Food Standards Code (FSC). According to the consultation paper, the 2003 Ministerial Policy allowed for:

- "maintaining the current additive permissions for caffeine; and
- restricting the use of new products containing non-traditional caffeine-rich ingredients (including guarana) to boost the caffeine content in other food, beyond the current provisions for caffeine."

(p4)

Given this provision was made 10 years ago, it is difficult to understand why there has been any allowance of an expanded market of new products containing caffeine or guarana since then.

Further, it is the PHAA's understanding that Standard 1.3.1 of the FSC provides a general prohibition on the addition of caffeine across the food and drink supply, unless otherwise specified, such as in Standard 2.6.4 for formulated caffeinated beverages. Therefore, again, it is difficult to understand how there can be products on the market that do not comply with these regulations.

While it is understood that products have been allowed into Australia via the New Zealand Dietary Supplement Regulations 1985 and the Trans-Tasman Mutual Recognition Arrangement (TTMRA), it is PHAA’s understanding that New Zealand agreed to repeal the dietary supplements regulations as soon as practical after the joining of the two countries food regulations in 2000 (not that they would be retained until they could be incorporated into the FSC as indicated in the consultation paper on p6). Therefore, it would make far more sense to sort out the underlying difficulties these regulations create for Australia once and for all, rather than continuing to adjust the FSC to accommodate them. It is an attack on Australia’s sovereignty, that New Zealand regulations have and continue to force Australia to change its regulations, when New Zealand has the option to opt out of policies and standards it deems
unsuitable for its sovereignty (e.g. mandatory folate fortification, food safety and primary production standards). Addressing this underlying issue would then create a proactive, rather than reactive solution to this extremely lengthy, and ongoing, trade problem.

In relation to any potential "barriers to trade" on caffeine containing foods and beverages that such action might create, Australia would be able to present good evidence and arguments regarding the public health consequences of caffeine consumption, in order to avoid any challenge regarding trade restrictions by New Zealand and the World Trade Organisation (WTO). Such evidence could be presented under the WTO legal instrument "Application of Sanitary and Phytosanitary Measures". Also, under the General Agreement on Tariffs and Trade (GATT) the FSANZ primary objectives to protect public health and safety as well as prevent consumer deception, are objectives that could provide legitimate reasons for trade restrictions.

**Recommendation 5:** Consideration also be given to the energy (kilojoule/calorie) and acid (pH) content of the caffeinated products in determining risk.

**Recommendation 6:** Finalise negotiations with New Zealand around the Dietary Supplements Standard issue. If agreement to repeal the supplements standard cannot be negotiated, amend the FSC to signal that caffeine related standards apply specifically to Australia. Amend the TTMRA if necessary to effect this.

**Comments on section 4.10 - 4.12 of the consultation paper**

As there is no question pertaining to sections 4.10 - 4.12 of the consultation paper, the PHAA would like to make the following comments on these sections which pertain to information on caffeine consumption, the marketing of caffeine, and the community concerns regarding caffeine consumption.

PHAA believes community concerns about the consumption of caffeine and increasing availability of products containing caffeine have been understated by FRSC. For example, almost 80% of respondents to the 2012 Western Australian Nutrition Monitoring Population Survey (n=3196) reported being "very concerned" about the sale of high-caffeine drinks to children 12 years and under. This was significantly higher than in 2009 when almost 70% reported being very concerned (Pollard CM, Meng X et al. Online 8 August 2013).

Of particular concern to both the community and the PHAA is the combination of energy drinks with alcohol. Whilst it is acknowledged that a separate Intergovernmental Committee on Drugs is looking at this issue, PHAA urges FRSC to develop the caffeine policy in conjunction with, not before, this other work has been completed. Further, it would be appreciated if stakeholders were informed of the timeline planned for both this work and that of the Intergovernmental Committee on Drugs.

Regarding the proportional data presented in Table 3b of the consultation paper (p14), it seems strange that given the age categories, cola drinks have not been included as a separate category. It also
seems that the proportion of caffeine consumed via energy drinks, has been diluted by the inclusion of electrolyte and fortified drinks in the same category.

It would be useful for comparative purposes, if the data presented for New Zealand children and adults was presented in a comparable format to that of the Australian data. This seems particularly important given the possibility of additional caffeinated products being available in New Zealand under the Dietary Supplements Regulations.

Appendix 1 of this submission provides further examples of marketing and advertising strategies, as well as the extreme and bizarre claims made by manufacturers of caffeinated products in order to promote increased consumption and sales.

**Recommendation 7:** Develop the caffeine policy in conjunction with, and not before, the work of the Intergovernmental Committee on Drugs in relation to energy drinks and alcohol.

**Recommendation 8:** Present all Australian and New Zealand data in comparable ways.

**Question 5: Risks in consuming caffeine**

Is there any other relevant evidence relating to the risks associated with consuming caffeine not provided here or in the listed references? If so please provide details and references.

Appendix 2 of this submission provides a copy of a letter written to the US Food and Drug Administration by a number of concerned scientists, regarding the dangers of caffeinated beverages (Arria, O'Brien et al. 2013). This letter outlines a range of issues and a number of references that have not been provided in the consultation paper.

Additional references that the PHAA is aware of, and that have not been provided in the consultation paper, include Thomson and Schiess (2010) and Zucconi, Volpato et al (2013).

PHAA is particularly concerned about the addictive nature of caffeine. Pohler (2010) states that caffeine meets all the requirements for being an addictive substance, including dependence, tolerance and withdrawal. Addiction has both a physical and emotional component. The physical component is a biological state in which the body adapts to the presence of the substance and develops tolerance. As a result of tolerance, there is a biological reaction when the drug is withdrawn. As FRSC have noted in section 4.13 of the consultation paper, there are a range of withdrawal symptoms associated with the habitual consumption of caffeine. Thus, caffeine would be defined as an addictive substance.

Pohler (2010) also describes a syndrome called caffeinism that results from chronic consumption of caffeine and addiction. Symptoms include nervous irritability, tremulousness, occasional muscle twitching, sensory disturbances, tachypnoea, palpitation, flushing, arrhythmias, diuresis and gastrointestinal disturbances. Patients may present with generalised anxiety or depression, and...
withdrawal of caffeine can be an onerous task, the duration of which may range between two days and two weeks.

Thus, the addictive nature of caffeine cannot be understated or underestimated. It is for this reason alone (not for flavour as claimed), that the food industry wants to increase both the amount and range of caffeine in food and drink products on the market in Australia and New Zealand. It is also for this reason that, despite promises to the contrary, promotion of caffeine containing products is surreptitiously (or sometimes more openly) targeted at youth and adolescents, and particularly young males (Reissig, Strain et al. 2009).

Caffeine is a drug, and whether there is sufficient evidence or not, it is unlikely that consumption established early in life would not contribute to long-term negative health outcomes.

The effect of long-term caffeine consumption is also noted in the consultation paper, and it raises concerns regarding the long-term implications for public health, including the cost of treating associated chronic disease such as cardiovascular disease and osteoporosis. Chronic disease currently costs all Australian and New Zealand jurisdictions the majority of their health budgets, and these diseases are preventable.

PHAA is somewhat puzzled as to why the FRSC would take note of the "insufficient evidence to confirm or refute the effectiveness of caffeine avoidance on birth weight or other pregnancy outcomes" as presented by a Cochrane review that is based on one randomised control trial that met the inclusion criteria. This could hardly be considered a review of the evidence when only one study was included.

A significant health issue that is not considered in the consultation paper, but is particularly influenced by caffeine consumption, is that of oral health. Caffeine is associated with salivary dysfunction secondary to the diuretic effects of caffeine (Walsh 2003). This causes reduced salivary protection in the mouth and increases the risk of dental caries and dental erosion. Independent of this is the effect on oral health created by the erosive actions of the acids contained within caffeinated drinks. A low pH associated with caffeine containing drinks contributes to dental erosion and changes in the oral microflora. Typical pH values for caffeine containing drinks are:

- soft drink pH 2.5-3
- energy drinks pH 4
- coffee pH 5
- tea pH 6 (Walsh 2003).

A review of the literature by Pennington et al (2010) determined that adolescents are consuming an alarming amount and rate of energy drinks. Such consumption is creating a range of effects reported by both adolescents and healthcare providers. Adolescents report specific effects including jitteriness, nervousness, dizziness, an inability to focus, difficulty concentrating, gastrointestinal upsets and insomnia. Healthcare providers have reported effects including dehydration, accelerated heart rates, anxiety, seizures, acute mania and strokes from the consumption of energy drinks.

According to Pohler (2010) excessive caffeine consumption effects virtually every organ system in the human body, including the central nervous system, cardiovascular system, gastrointestinal, neuromuscular, bronchial and the skeletal systems. Caffeine consumption elicits a prolonged stress
response in the body, and the clinical effects of caffeine make it particularly important for the care of persons with hypertension, diabetes mellitus, gastro-oesophageal reflux disease and irritable bowel syndrome. It may also make medical management and control of such diseases more difficult to manage.

Additional concerns suggested in the literature (Reissig, Strain et al. 2009) include a greater vulnerability to caffeine intoxication among children and adolescents, who are not habitual caffeine uses, and have not yet established a pharmacological tolerance. More alarmingly, some studies also suggest that energy drinks may provide a gateway to other forms of drug dependence (Reissig, Strain et al. 2009).

Another concern for girls, is the association between cola beverage consumption and bone fractures noted by Walsh (2003). Whilst the caffeine and orthophosphoric acid content in black cola drinks is linked with hypocalcaemia, there is also an associated declining consumption of milk, compared with caffeinated, carbonated beverages, which raises concerns of osteoporosis in later life.

**Recommendation 9:** Consider in particular the addictive effects of caffeine and the likely impact that addiction has on consumption of beverages and foods of poor nutritional quality.

**Question 6: Positive Effects of Caffeine**

Is there any other relevant evidence relating to the positive effects of caffeine not provided here or in the listed references? If so, please provide details and references

PHAA is unable to provide evidence of any positive effects of caffeine.

**Question 7: Further Problems**

Are there any other problems that should be considered here? If so, please provide details and justification.

PHAA does not believe the current Ministerial Council policy guideline is either ambiguous or lacking in clarity. In addressing the issues raised in section 5 of the consultation paper, PHAA makes the following comments.

- Given the Ministerial Council is responsible for developing policy guidance, it should therefore follow that the Ministerial Council (or the Committees and Statutory Bodies that report to the Council, specifically FRSC, ISFR and FSANZ) would be responsible for determining whether further evidence is available, what evidence would be required, and what guidance should apply if such evidence became available.

- The Food Standards Code is not silent on the addition of caffeine to foods other than cola drinks, formulated caffeinated beverages and formulated beverages. On the contrary, Standard 1.3.1 provides a general prohibition across the whole FSC for the use of caffeine as an additive, unless
where expressly permitted such as in cola drinks and in Standard 2.6.4 for formulated caffeinated beverages. Where caffeine has been added to other foods and beverages such as sports foods and electrolyte drinks, this is contrary to the requirements of the FSC and in contradiction of Ministerial Policy.

- If caffeine has been added to other foods and beverages via the use of guarana as an ingredient, Ministerial Policy is quite clear about restricting the use of new products containing such ingredients to boost caffeine content beyond (what were) the current (2003) provisions. Therefore, it would be reasonable for FSANZ to add (and post date) this product, and other newer caffeine containing foods or ingredients, as prohibited in the FSC.

- With regard to the Trans-Tasman Mutual Recognition Arrangement, PHAA does not understand why Ministerial Policy formulated by the Australia and New Zealand Food Regulation Ministerial Council, does not apply to the regulation of caffeine in both Australia and New Zealand. Further, as the FSC is a joint code, the New Zealand Dietary Supplements Regulations 1985, should have been repealed when the food regulatory system became a joint system in 2000. Instead, New Zealand continues to challenge Australia’s sovereignty by refusing to repeal these regulations, and so far only agreeing to an interim measure in the Supplemented Food Standard 2010. Given that New Zealand can opt out of any food standards it does not agree with, surely Australia can do the same. It is well past the time to finally address this underlying problem once and for all, rather than continually changing Australian food regulation policy and standards to suit New Zealand’s inability to deal with illegal products within its own borders.

- With respect to Ministerial Council policy guidance being risk-based and reflecting best practice regulation principles, surely it is the responsibility of policy to provide overarching direction for the issue at hand. Then, it is the responsibility of FSANZ (the experts in the assessment and management of risk) to apply the relevant risk-based approach to the development of any new, or revised, standard that may be required as a result of the policy.

- PHAA would also appreciate further detail of which best practice regulation principles the current policy does not reflect. Again, why would an overarching policy need to contemplate the use of specific tools such as education in the risk management of caffeine, rather than leave the assessment of appropriate risk management tools to FSANZ? If the Ministerial Council so chooses to delve into such specifics, it would need to do a thorough assessment of the impact education programs have on behaviour change. If indeed it did do such an assessment, it would discover, as public health professionals determined a few decades ago, that education programs have little impact on behaviour patterns, particularly for less advantaged groups in the population. Unless supported by social and structural change (including good quality policy) or unless funded to the same level that “junk” food manufacturers invest in when advertising their products (i.e. billions of dollars) education programs make little or no difference to the behaviour of the most at risk groups, such as low socio-economic, non-English-speaking, teenage and young adult populations (Nutbeam 2000; Glanz, Rimer et al. 2008).

This question asks about any problems associated with the current Ministerial Policy Guideline. PHAA suggests that the strengths or positives of the guideline must also be assessed as thoroughly as any purported weaknesses, before any change to current policy is considered.
PHAA submission on Caffeine Options Paper

Question 8: Other Objectives

Are there any other objectives that should be considered here? If so, please provide details and justification.

Ministerial Council policy guidance should be in line with FSANZ’s statutory objectives as the first priority. These objectives should be clearly stated in the terms of reference of any review of Ministerial Council policy. Of particular concern to the PHAA is the protection of public health and safety, which, according to the very first recommendation of the Review of Food Labelling Law and Policy commissioned by the Ministerial Council (Department of Health and Ageing 2011), includes the promotion of health and prevention of illness, injury and disability. The PHAA believes this definition would include the ill-health, sudden death and chronic disease that can occur from both excessive and long-term consumption of caffeine.

Further, Ministerial Council policy should not be beholden to products already on the market. Thus, food and beverage products on the market should be designed around previously agreed upon food regulation policy and standards, and not vice versa. This is especially the case where products already on the market are a blatant stretching of the legislation via the use of regulatory loopholes, or where products on the market are indeed illegal.

Pre-market assessment and regulation is far preferable to post-market panic when it comes to the health of the public. In other words, public health should always be put before corporate wealth. This is especially the case where considerable public funds are being used to develop policy for the whole community (not just the food industry) within a democratic society.

Finally, PHAA recommends that FRSC make clear, who, and by what criteria, will determine whether the Ministerial Council policy provides an “effective” framework to guide a review of regulation regarding caffeine in the food supply?

Recommendation 10: Ensure that protection of public health and safety (which includes the promotion of health and prevention of illness) be afforded the highest priority.

Question 9: Other Feasible Options

Are there any other feasible options in relation to the Ministerial Council Policy Guideline on the Addition of Caffeine to Foods which have not been listed here?

If so, please provide details and justification.

Given the consultation paper already provides a draft revised policy guideline (pp29-30) the PHAA can only assume that FRSC has already determined its preferred policy option as Option 2: Amend the Ministerial Council Policy Guideline to address the issues raised in the problem definition.
However, the PHAA needs to ask, what is the actual “policy problem” the Ministerial Council is trying to address with this guideline? While the consultation paper outlines a number of issues regarding the availability, use, marketing and risks associated with caffeine, it fails to identify a specific policy problem or set of problems a policy guideline on caffeine in foods and beverages is required to address. Rather, the problems that are defined, relate specifically to the current policy, not the reasons a policy is actually needed.

Is the problem relating to caffeine in the food supply one that requires a policy to:
- protect public health and safety;
- create sales opportunities and economic benefit for industry;
- reduce the cost of regulation for government;
- reduce the cost of regulation for industry;
- increase the range and the amount of caffeine containing products in the food supply in order to provide customers with more choice;
- regulate the quantity of an addictive drug that is in the food supply;
- something else?

It seems to the PHAA that the fundamental policy problem is the TTMRA, along with the food industry’s desire to create more and more economic benefit for their companies and shareholders. Whilst the PHAA understands the need for business to be economically viable, this should never be at the expense of public health and safety, or as a result of misleading and deceiving the community.

Any expansion of the number and range of caffeine containing products in the food supply would provide no real benefit for the general public from a health perspective, or with respect to increasing the choice of products containing caffeine. Indeed too much choice has been correlated with increased occurrence of clinical depression, decreased well-being and decreased happiness (Schwartz 2004), as well as reduced motivation to purchase products and increased dissatisfaction with goods after purchase (Iyengar and Lepper 2000; Iyengar, Jiang et al. 2003).

Therefore, PHAA proposes only a minor change to the current Ministerial Council policy guideline on the addition of caffeine to foods (and beverages) in order to restrict the addition of caffeine rich ingredients to foods and beverages, and the mixing of caffeine rich foods and beverages with other foods and beverages in the food supply. However, PHAA does not support any changes to the current additive permissions for caffeine (as in Standard 1.3.1). PHAA also recommends that any products containing caffeine rich ingredients (from any source) should be subject to a pre-market risk assessment on an additive case by case basis, so that the total amount of caffeine in the food supply is regulated and monitored. Such a risk assessment should also be retrospective for ingredients and foods currently in the food supply but not previously covered by Ministerial Policy or the Food Standards Code (FSC).

**Question 10: Impacts on Consumers**

Are there any impacts (advantages or disadvantages) on consumers, industry or government which have not been considered here? If so, please provide details (noting the impacts assume that a review of regulatory standards would have reference to the Policy Guideline described in the options).
**PHAA submission on Caffeine Options Paper**

PHAA would like to make the following additions and suggestions to the tables of advantages and disadvantages for each policy option proposed by FRSC in the consultation paper. PHAA comments are in bold.

### Option 1: No changes

Make no changes to the ministerial Council policy guideline on the addition of caffeine foods.

<table>
<thead>
<tr>
<th>Stakeholder group</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumers</td>
<td>No particular advantages. Limits exposure of the general public, especially vulnerable groups, to new products and additional sources of caffeine, particularly those products with an excessive amount of caffeine. Limits the number of new products containing caffeine. Also limits the chance, and side-effects, of addiction to caffeine. This is especially important for children, teenagers and young adults who are most likely to consume foods and beverages that have large amounts of added caffeine. Maintains current restrictions on both guarana and other such ingredients that may be used in the future. Assists the public to not be overwhelmed by an increasing array of caffeine rich foods and beverages in the food supply.</td>
<td>Limits the use of labelling as a risk management tool for products with added caffeine and non-traditional foods with naturally occurring caffeine, even though traditional foods with naturally occurring caffeine (e.g. tea, coffee and cocoa) are key dietary sources of caffeine. There could be an impact on consumer choice of products containing new ingredients with naturally occurring caffeine. This is because the Ministerial Council Policy Guideline suggests restrictions should be applied on such new ingredients. However, this suggestion is not based on a risk assessment.</td>
</tr>
</tbody>
</table>
Industry

Signals to industry government expectations in relation to specific risk management tools in relation to the regulatory management of caffeine (e.g. labelling of foods containing added caffeine, restrictions on new ingredients containing naturally occurring caffeine).

Do not need to incur the cost of additional labelling, particularly for traditional sources of caffeine, that most persons would be aware contain caffeine (e.g. tea, coffee).

May lead to less scope for innovation, as non risk-based restrictions may be placed on use of new ingredients containing naturally occurring caffeine. Not equitable across industry sectors, because some of the primary dietary sources of caffeine (e.g. tea, coffee and cocoa) are not included in scope of the full range of risk management tools (e.g. labelling). This is because the Ministerial Council Policy Guideline excludes the full range of risk management tools.

Public Health

Do not need to divert resources away from other public health measures in order to address public confusion over an increasing array of caffeine rich products, or provide input into a new Ministerial Council policy.

New products entering the Australian market via New Zealand may create public health problems that cannot be dealt with easily under existing legislation.

Government

No particular advantages.

Do not need to invest in new regulation which drains a considerable amount of publicly funded resources. Do not need to invest in additional staff (or divert existing staff from other important regulatory matters) to manage and monitor compliance with new regulations.

Does not add to already significant cost of health care for both short and long term health consequences of excess caffeine consumption and/or caffeine addiction.

Inconsistent with general approach to food safety regulation as it is not risk-based, particularly as primary sources of dietary exposure to caffeine are excluded in the full range of management tools in the Ministerial Council Policy Guideline. Intends to communicate government policy, but lack of clarity in the Ministerial Council Policy Guideline means it is not clear it can contribute to because of underlying problems such as the TTMRA it is unable to enable the realisation of that policy.
Option 2: Amend the Guidelines

Amend the Ministerial Council Policy Guideline to address the issues raised in the problem definition

<table>
<thead>
<tr>
<th>Stakeholder group</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Consumers</strong></td>
<td>Provides for a risk based review while focusing on vulnerable populations and including all dietary sources of caffeine within scope for the full range of risk management tools. Provides opportunity to specifically address new caffeine rich ingredients currently in the food supply, as well as introduce strict labelling laws that better inform and protect the public.</td>
<td>Lack of visibility in Policy Guideline of specific risk management tools (e.g. labelling and certain restrictions) may impact consumer confidence in regulatory management of caffeine. The proposed revised policy lacks more clarity than the current policy and would impact the confidence of the general public as well as public health professionals in the regulatory management of caffeine in the food supply.</td>
</tr>
<tr>
<td><strong>Citizens/General Public</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Industry</strong></td>
<td>Equal treatment of all industry sectors within a risk management framework. Potential scope for product innovation within a risk management framework, paying particular attention to vulnerable population groups.</td>
<td>Those industry sectors formerly excluded from scope may face regulatory changes (if recommended for risk management purposes).</td>
</tr>
<tr>
<td><strong>Public Health</strong></td>
<td>Provides opportunity to specifically address new caffeine rich ingredients currently in the food supply, thereby assisting public health professionals with the prevention and management of public health problems related to excessive caffeine consumption.</td>
<td>Redirects public health funds and resources away from existing initiatives in order to assist with the development and management of a new policy. Regulatory officers unlikely to be provided with additional resources to monitor and enforce new policy or standards. Is unlikely to address the total amount of caffeine in the food supply, or deal with the products that have and will create most public health problems.</td>
</tr>
</tbody>
</table>
### Government

Wider scope and consistency with risk management principles means the policy aligns with food regulation policy more generally. May provide greater scope for trans Tasman harmonisation. Provides opportunity to specifically address new caffeine rich ingredients currently in the food supply, and provide greater legislation for labelling of highly caffeinated products. Depending on whether the Ministerial Council Policy Guideline is reviewed, maintained or rescinded there is the potential for change to impact on government agencies. Enforcement agencies are unlikely to be provided with additional resources to assist in the development, management, monitoring and enforcement of any new policy and related standards.

### Option 3: Rescind the Guidelines

Rescind the Ministerial Council Policy Guideline

<table>
<thead>
<tr>
<th>Stakeholder group</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Consumers</strong></td>
<td>Scope of the review entirely up to FSANZ and so is likely to correspond with risk management principles. FSANZ has significant expertise in risk assessment and risk management, and is better placed to determine risk based policy and standards. As a statutory body FSANZ is more able to make apolitical decisions.</td>
<td>Lack of high-level political accountability for a Policy Guideline and visibility about specific risk management tools and vulnerable population groups may affect confidence in regulatory management of caffeine.</td>
</tr>
<tr>
<td><strong>Citizens/General Public</strong></td>
<td>Those industry sectors formerly excluded from scope of full range of risk management tools (e.g. labelling) may face regulatory changes (if recommended for risk management purposes).</td>
<td></td>
</tr>
<tr>
<td><strong>Industry</strong></td>
<td>Scope of any review entirely up to FSANZ and so likely to correspond with risk management principles, and equal treatment of general public, public health, government and industry stakeholders sectors.</td>
<td></td>
</tr>
</tbody>
</table>

---

PHAA submission on Caffeine Options Paper

20 Napier Close Deakin ACT Australia, 2600 – PO Box 319 Curtin ACT Australia 2605

T (02) 6285 2373 F (02) 6282 5438 E phaa@phaa.net.au W www.phaa.net.au
PHAA submission on Caffeine Options Paper

Public Health

- Public health stakeholders would have more confidence in the skills of FSANZ to develop risk based policy and standards.
- Policy and standards less likely to be influenced by political factors.

Lack of high-level political accountability for a Policy Guideline should there be significant and serious public health consequences of excessive caffeine consumption and/or caffeine addiction, particularly among vulnerable groups in the population such as children and adolescents.

Government

- Wider scope and consistency with risk management principles means consistency with approaches to food regulation policy more generally.
- May provide greater scope for trans-Tasman harmonisation.

Other than statutory requirements, FSANZ would not have clear guidance from Ministers for a review. Lack of policy guideline means it may be more challenging to communicate governments’ focus on risk management, especially for vulnerable population groups. Trans-Tasman harmonisation unlikely to occur, given it has not been achieved over the last 13 years. Australian sovereignty continues to be challenged by New Zealand’s refusal to rescind their Dietary Supplements Regulations.

Question 11: Costs and benefits

Can you provide data to support the potential costs and/or benefits of impacts of policy options? If so, please provide details.

There are significant economic costs associated with regular, long-term consumption of unhealthy food and drink choices, including excessive use of highly caffeinated foods and beverages. These costs affect not only the direct cost of running Australia’s health care system, but also create indirect and intangible costs to both individuals and the broader community. Access Economics has calculated that the total cost of obesity in 2008 was $58.2 billion (Public Health Association of Australia 2012).

A continued increase in the obesity epidemic is only one potential public health consequence of a larger number and range of foods and beverages containing excessive amounts of caffeine, sugar and saturated fat in the food supply. Other significant public health consequences include chronic diseases...
PHAA submission on Caffeine Options Paper

such as diabetes, heart disease and some cancers. The caffeine, acid and sugar content of many highly caffeinated foods and beverages also significantly contribute to chronic oral health problems but also cost the government and the community billions of dollars each year. It is unlikely that any economic benefit gained by the industry from an increased range and availability of highly caffeinated products, would outweigh the multi-billion-dollar, possibly trillion dollar, cost of the public health consequences for individuals, the community and all levels of government.

Question 12: Preferred Option

Please indicate your preferred option (as stated or otherwise) and provide details as to why you consider this option suitable.

PHAA supports only a minor change to the current Ministerial Council policy guideline on the addition of caffeine to foods (and beverages) in order to restrict the addition of caffeine rich ingredients to foods and beverages, and the mixing of caffeine rich foods and beverages with other foods and beverages in the food supply. However, PHAA does not support any changes to the current additive permissions for caffeine (as in Standard 1.3.1). PHAA also recommends that any products containing caffeine rich ingredients (from any source) should be subject to a pre-market risk assessment on an additive case by case basis, so that the total amount of caffeine in the food supply is regulated and monitored. Such a risk assessment should also be retrospective for ingredients and foods currently in the food supply but not previously covered by Ministerial Policy or the Food Standards Code (FSC).

Additional comments

The PHAA does have some concern that the proposed changed to the Ministerial Council policy guideline on caffeine in the food supply will deflect attention from the products that are a significant problem in the community (e.g. energy drinks, guarana containing products) onto more traditional and well known sources of caffeine, such as tea and coffee. Should the Ministerial Council pursue a change of policy, PHAA recommends the FRSC keep this issue in mind during the policy development process.

PHAA would also like to make the following suggestions with respect to the proposed policy provided in section 9 of the consultation paper (pp29-30):

- whilst there is currently no Codex policy on caffeine in food and beverages, it appears to be an oversight that Codex is not mentioned alongside other relevant policies, organisations and agreements listed as relevant to the development of food standards in Australia and New Zealand;
- the first specific policy principle states regulation should "manage risks to vulnerable population groups" but does not make clear what this means, how it will be achieved, and who will be responsible for it;
- the second specific policy principle does not indicate what would be done with any information from the "ongoing monitoring of emerging evidence and the regulation of caffeine in overseas jurisdictions";
- additional specific policy principles should also include:
  - monitoring and management of excess usage of highly caffeinated foods and beverages by population groups that are particularly susceptible to the advertising of these products, such as children, teenagers and young adults;
PHAA submission on Caffeine Options Paper

- ensure advisory/warning statements are clearly visible and legible on food and beverage packaging and not hidden at the bottom or under flaps of packages, or in small print;
- give specific consideration to the monitoring and management of the addictive properties of caffeine, particularly with respect to its impacts on health;
- give specific consideration to the monitoring and management of any interactions between caffeine and over the counter or prescribed medications, as well as illegal drugs.

The PHAA urges a precautionary approach to the regulation of caffeine in the food supply of both Australia and New Zealand.

Recommendations

**Recommendation 1:** It is imperative that should the government choose to continue to rely on such forms of regulation, any voluntary codes must be supported by industry-funded, independent assessment of effectiveness and compliance, with significant penalties applying for non-compliance.

**Recommendation 2:** Wait for, and give due consideration to, international reviews on the safety of caffeine that are currently underway as well as the National Nutrition Survey data on caffeine.

**Recommendation 3:** Adopt the “high caffeine content” labelling regulation currently in use by the European Union; the maximum limit the total caffeine per litre and per container proposed by Health Canada; and an indication on the label of caffeine containing products of the maximum recommended daily consumption of caffeine for adults, as a feature of any possible change in Australia and New Zealand regulations regarding caffeine in foods and beverages.

**Recommendation 4:** Ensure that Australian Consumption data are presented in the same way as the New Zealand data to illustrate not only mean intakes but also, and more importantly, intakes of high consumers and those with intakes above the adverse effect level.

**Recommendation 5:** Consideration also be given to the energy (kilojoule/calorie) and acid (pH) content of the caffeinated products in determining risk.

**Recommendation 6:** Finalise negotiations with New Zealand around the Dietary Supplements Standard issue. If agreement to repeal the supplements standard cannot be negotiated, amend the FSC to signal that caffeine related standards apply specifically to Australia. Amend the TTMRA if necessary to effect this.

**Recommendation 7:** Develop the caffeine policy in conjunction with, and not before, the work of the Intergovernmental Committee on Drugs in relation to energy drinks and alcohol.

**Recommendation 8:** Present all Australian and New Zealand data in comparable ways.

**Recommendation 9:** Consider in particular the addictive effects of caffeine and the likely impact that addiction has on consumption of beverages and foods of poor nutritional quality.

**Recommendation 10:** Ensure that protection of public health and safety (which includes the promotion of health and prevention of illness) be afforded the highest priority.
References


Pollard CM, Meng X, et al. (Online 8 August 2013). "Community Concern About The Sale Of High-Caffeine Drinks To Children Under 12 Years Of Age: Western Australia Population Survey Results." Health Promotion Journal of Australia.


Appendix 1:

Examples of some high caffeine products (with associated marketing) available in the overseas market


With two pieces of Jolt Gum containing the same amount of wake up power as a can of energy drink.

*Not Just Caffeine.*

This product contains guarana and ginseng so your wake up is not just caffeine fuelled.
Do More.

Need a boost? Keep a pack of Jolt gum handy, it’s easier to carry and consume than drinks which spill.

2. Energy Bites

_Blasts of delicious chocolaty caffeine._ One of our favourite candies growing up was W&W’s (you know what we mean - just go with it). The sugar rush was always divine. BUT, now we’re older. Sure we love sugar, but we really need now is caffeine. Well, ask and ye shall receive. Outburst Caffeinated Chocolate Energy Bites for everyone!

Outburst Bites are pretty much like pumped up W&W’s. Candy coated, delicious chocolate - but this time blasted with caffeine. **20 mg per piece!** And since **a serving is 4 pieces**, you’ll eat four yummy chocolates and get as much caffeine as an energy drink. Now, there are 12 candies per box, so you might find it hard to stop at just four. We found it hard to stop at just four boxes!

3. Energy Gummy Bears

Ok, we’re not going to write anything silly here. We just ate a whole bunch of Energy Gummi Bears and we have to write this fast and then go run around a lot. Why? Because we’re so loaded with energy: caffeine and energy and vitamins and . . . read on and share the love. Energy Gummi Bears are exactly what they sound like: Energy enriched gummi bears! Packing a lovely citrus blast flavour, each package is one serving (and actually low on the calories). In exchange for eating about 9 gummi bears, your **body will be bathed in caffeine**, a bunch of different B vitamins, vitamin C, co-enzyme Q-10, taurine, protein, and runaroundein. Which is what we have to go do now because we just can’t sit still anymore. Get a bag Energy Gummi Bears or five of your own, and never sit still again.

- 32mg of natural caffeine per serving.
- 60 calories per serving (1 bag).
4. Bawls Mints

Spiked with the same high-caffeine Guarana that fuels the amazing BAWLS soft drink, **these fizzy sweet mints are some of the best candies around to help you stay up all night.** They are even slightly carbonated to mimic that authentic BAWLS experience. And they taste great!

Each tin contains approximately 75 slightly carbonated BAWLS mints. Each mint contains about 1 milligram of caffeine (via Guarana & pure caffeine). Contains real sugar (each mint has about 1.3 calories and a quarter gram of carbs). Regular candy is for babies. BAWLS mints are not for babies.

5. 50 Cups of Coffee Tub o’ Caffeinated Candy

Caffeine fills our blood and keeps our brains going. We like it and we likes lots of it. We like drinks and candies loaded with it. So, when we were presented with a product called **50 Cups of Coffee Tub o’ Caffeinated Candy** we tasted, we loved, we snagged some to offer to you.

**50 Cups of Coffee Tub o’ Caffeinated Candy** each contain about 200 candies. Take them 4 at a time for **100mg of caffeine** (about the same as a cup of coffee) (5,000mg caffeine per tub!). They are little balls of delicious coffee and chocolate goodness. Plop a tub on your desk and recharge yer batteries whenever you need to. **50 Cups of Coffee Tub o’ Caffeinated Candy** - you’ll get your sweet fix and your caffeine fix all in one yummy fix.

- Each four piece serving has about as much caffeine as a regular cup of coffee (100mg).
- Big tub has about 50 servings, so you can stay awake forever!

6. DoubleKick hot sauce
Your brain is tired. Your mouth is bored. Your face needs to be spin-kicked back into shape. But not just any spin-kick. One of those slow-motion spin-kicks that gets replayed over and over from a variety of angles. Yeah, one of those. And that spin-kick is called: DoubleKick Caffeinated Hot Sauce.

- **Caffeine Content**: 12 mg per 1 tsp (one serving).

7. Penguin Mints

These are incredibly flavoured caffeinated cinnamon morsels of pure coding bliss.

Three penguin mints are equivalent to about 1 coke in terms of caffeine. There are about 75 mints per tin. **Drop a cinnamon penguin red in a bawls if you want to get devilishly serious** (actually, we've named this concoction the 'fiery blue bawls')

Your choice of a single tin or a 3-pack.

8. Jacked Up Caffeinated Baking Sugar
Baking cookies and brownies and cakes is so much fun. And then eating your creations is so much MORE fun. The only thing is, sometimes after all that work (especially if you're baking for a function and need to bake multiple batches of something), one gets very tired. Well, it's time for that one to wake the smack up with *Jacked Up Caffeinated Baking Sugar*.

It's super easy to make the most of *Jacked Up Caffeinated Baking Sugar*. Just use it in place of up to 1 cup of the boring sugar your recipe calls for (not more than 1 Tbsp per serving). Boom. That’s it. Whatever you are cooking is now loaded with caffeine. *Commonplace cookies are now . . . caffeinated cookies of power!* *Boring brownies are now . . . caffeinated brownies of energy!* Mundane meatloaf is now . . . dinner (but you eat some caffeinated cake afterwards, so it's still good). Get some *Jacked Up Caffeinated Baking Sugar* now and kick your baked goods in their proverbial pants.

**Please Note:** For best results (plus flavour and health reasons), use no more than 1 cup of Jacked Up Sugar per 16-24 servings in a recipe (not more than 1 Tbsp per serving), supplementing with regular sugar if necessary.

- Replace a portion of the sugar your recipe calls for with Jacked Up Sugar and your baked goods will be caffeinated!
- **Caffeine Content:**
  - 1 tsp = 46 mg
  - 1 Tbsp = 137 mg
  - 1 cup = 2200 mg

9. **Energy Mint on a Stick**
15g creamy caramel mint lollipop infused with 80mg of caffeine. Yum!

**10 Nuclear Energy Powder**

A delicious way to avoid a meltdown. This Gallium Grape fuel rod contains 90mg of caffeine delivered by pouring the powder into your mouth and enjoying the ensuing explosion of taste while leaving your mouth with a radioactive tint!

Although not suitable for young children, it will make you feel like one again. Functional candy has never been this fun!

**11. Brain Bits**

Dieting? Eating a whole brain at a time is packed with calories. Brain Bits are a great snack! Each tube contains parts from the frontal lobe, cerebellum, basal ganglia, and hypothalamus. To help keep you energised, these watermelon flavoured bits are fortified with 50 mg of caffeine.
12. Dried Drops

Don’t have time for the real thing?

Pop a dab of dried drops. When away from your kill, these little drops fit great in your pocket or purse so you can sneak one out to satisfy your craving. For an extra kick, our cherry flavoured drops are doped with a kick of 50 mg of caffeine.


Zombie Blood Energy Potion contains similar nutritional content to real blood, including iron, protein, electrolytes, enzymes and heaps of energy. Lifeless Lime flavour Zombie Energy blood is the safe and fun way to enjoy the great taste of zombies without putting you or your loved ones in harm’s way. Delicious chilled.

- Similar in nutrients to real blood
- Up to 4 hours of energy
- Disturbing source of electrolytes
- Protein + Iron
- 80mg caffeine per 100ml serve

14. X3 Energy candy
X3 Energy candy is like an energy drink in a hard candy. It contains caffeine, plus the added natural caffeine of guarana. In addition, ginseng and the energy-drink-staple taurine make this candy not only functionally similar to an energy drink, but similar in taste also.

Each piece is individually wrapped and contains 25 mg of caffeine - so you can eat this for a light pick-me-up, or munch on 4 at once for the equivalent kick of a decently sized energy drink!

15. GoGo Guaraná Buzz Gum

GoGo Guaraná Buzz Gum contains 500mg of guarana per piece, and contains 10 pieces per pack. If you’re ever in need of a helpful push to help you get up and go, this may be what you’re looking for. Plus, you can chew more pieces as required to really get you moving! The steadily released caffeine from the natural guarana seed along with the numerous other energy giving benefits of guarana will soon get you on your feet and into action.

16. Think Gum
Think Gum is a sugar-free chewing gum carefully designed to enhance cognitive performance. It contains potent herbs and herbal extracts that are scientifically demonstrated to improve concentration, increase alertness, reduce careless errors and enhance information recall.

- **Peppermint** is loved by all. It enhances mood, freshens breath, aids breathing and contributes to overall mental clarity.

- **Ginkgo Biloba** improves blood flow and circulation. It has been used as an overall memory and mental health enhancer for hundreds of years.

- **Bacopa** has been shown to improve speed of information processing, verbal learning rate and memory in healthy people.

- **Rosemary** has recently been shown to be a neural protector, attributing to a healthy brain. Also brightens mood and improves mental clarity and performance.

- **Guarana** is a natural source of slow-release caffeine, giving you sustained mental alertness and quickened perceptions.

- **Vinpocetine** helps increase blood flow to the brain and has been shown to increase short term memory recall.

On top of these wide ranging effects, chewing Think Gum has an overall aromatherapeutic effect which helps us relax and reduce careless errors caused by stress and other factors. Many of the herbs are also powerful antioxidants which promote overall health.

**17. Buzz Bites Chocolate Energy Chews**
Buzz Bites Chocolate Energy Chews contain a proprietary blend of caffeine, ginseng, taurine and B vitamins, which enhance performance, increase endurance, stimulate metabolism and sharpen that edge that lets you take on life. A single chew contains as much caffeine as a strong cup of coffee - more than a leading energy drink, with more energy producing ingredients too! Ideal for students, drivers, sports enthusiasts or anyone who needs a sudden burst of energy.

Packaged and protected in a convenient tin, 6 Buzz Bites are equivalent to over 7 leading energy drinks, but take up a fraction of the space in your pocket or bag while also costing a fraction of the price. Why settle for expensive energy drinks when you can have some tasty candy with all the benefits?

18 Cobra Potato Chips

The Cobra is a 2 ounce serving of explosive kettle cooked BBQ potato chips energy-infused with caffeine, taurine and B-vitamins. The Cobra Kettle Chips are a great pick-me-up any time of the day.
Appendix 2:

Letter sent to the US Food and Drug Administration by a range of eminent scientists, expressing concern about the risks and health consequences of highly caffeinated beverages.

(See attached PDF file = 131017 Arria et al 2013 BoSc let_v22 )