Submission from Cancer Council Australia to FSANZ's Application A1090- Voluntary addition of vitamin D to breakfast cereal

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Cancer Council is Australia's peak national non-government cancer control organisation. Its members are the eight state and territory cancer organisations, working together to undertake and fund cancer research, prevent and control cancer, and provide information and support for people affected by cancer. Cancer Council's goal is to lead the development and promotion of national cancer control policy in Australia, in order to prevent cancer and reduce the illness, disability and death caused by cancer.

Cancer Council has concerns regarding FSANZ's proposal to permit the addition of vitamin D_2 to breakfast cereal. We note the FSANZ call for submissions on Application A1090 states that Standard 1.1.1 of the Food Standards Code permits two forms of vitamin D: D_2 and D_3 to be added to relevant foods, as they can be considered equivalent at dietary intakes up to 25 µg/day. Therefore FSANZ has proposed to permit vitamin D_2 as well as vitamin D_3 for addition to breakfast cereal.

Recent studies suggest that circulating vitamin D_2 is associated with increased risk of all-cause mortality and inversely associated with vitamin D_3 concentrations. Our organisation does not support the draft variation proposed as it does not differentiate between vitamin D_2 and vitamin D_3 for food fortification.

There are two lines of evidence that indicate vitamin D_2 should not be used as a dietary supplement. Firstly there is evidence from a number of systematic reviews and meta-analyses covering a substantial body of literature, that vitamin D_2 does not raise circulating 25 hydroxy (OH) vitamin D levels to the same extent as does D_3[1, 2, 3]. Other evidence suggests that D_2 may reduce the availability of D_3 and does not increase calcitriol (1, 25 dihydroxy vitamin D) levels[4]. A recent randomised controlled trial in New Zealand evaluated the effect of 25 µg of D_2 or D_3 against placebo in healthy adults over 25 weeks of supplementation beginning at the end of summer[5]. Although D_2 supplementation maintained a higher serum 25(OH)D than in the placebo group, the fall in 25(OH)D_3 was larger in the D_2 supplementation group than the placebo group. This trial was different from most others as supplementation was started when the circulating 25(OH)D levels were relatively high. The results still clearly indicate the superiority of D_3 compared with D_2 in maintaining vitamin D levels.

Secondly, and of more concern are the meta-analysis by Chowdhury et al [6] indicating that while vitamin D_3 supplementation decreased all-cause mortality, vitamin D_2 supplementation did not, and in some studies increased mortality risk; and the Cochrane review of vitamin D supplementation and mortality [7] which found that vitamin D supplementation decreased

mortality, but when vitamin D_2 and vitamin D_3 were considered separately the benefit was only seen with vitamin D_3, and vitamin D_2 was associated with increased risk in trials at high risk of bias or in trials including participants with vitamin D insufficiency.

Researchers from Cancer Council VIC have unpublished data from the Melbourne Collaborative Cohort Study that show circulating vitamin D_2 is associated with increased risk of all-cause mortality and inversely associated with vitamin D_3 concentrations. These data are expected to be published soon and are available to share confidentially with FSANZ before journal publication.

In view of the above data suggesting that vitamin D_2 supplementation would not achieve the expected increase in circulating vitamin D levels, and may actually have a harmful effect there is no justification for allowing vitamin D_2 to be added to any foods. Cancer Council does not support the draft variation proposed by FSANZ - Food Standards (Application A1090 – Addition of Vitamin D to Breakfast Cereal) Variation. Cancer Council also strongly recommends a review of Standard 1.1.1 - Preliminary Provisions which permits two forms of vitamin D: D_2 and D_3 to be added to relevant foods. Given the potential harmful effects of Vitamin D_2, the Food Standards Code needs to differentiate between D_2 and D_3 for food fortification.

While Cancer Council supports the voluntary addition of vitamin D_3 to breakfast cereal, Cancer Council cannot support the current proposal as it permits the addition of vitamin D_2.

For further information on this submission:

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